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MANITOBA IMMUNIZATION MONITORING SYSTEM (MIMS)

ANNUAL REPORT 1990

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ACKNOWLEDGEMENTS

This first annual report of the Manitoba Immunization Monitoring System marks the culmination of many years of work on the part of a great number of people - from the visionaries who recognized that recording receipt of immunizations was almost as important as actually receiving them to the technical experts who have made it possible to capture this information.

We gratefully acknowledge the assistance of the public health nurses and medical officers of health in Medical Services Branch, City of Winnipeg Health Department and Manitoba Health who were involved at all stages of planning and implementation; the staff in what is now Health Information Systems who were unfailingly patient and cooperative in translating our concepts into a language which the computer could converse in; to Dr. Linda Poffenroth who, as Assistant Director, Communicable Disease Control provided the vital link between the users and the programers who compiled this report; and finally to all the physicians and public health nurses who provided the data on which this report is based.

MANITOBA IMMUNIZATION MONITORING SYSTEM

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INTRODUCTION

The Manitoba Immunization Monitoring System (MIMS) is a computerized immunization registry containing records for children who were born on or after January 1, 1980, and who are registered with the Manitoba Health Services Commission (MHSC). MIMS is a mainframe system which was developed from regional minicomputer registries in the 1980s. It is shared by all the public health agencies in Manitoba, including provincial, federal and municipal public health jurisdictions.

MIMS has been fully operational since January 1, 1989. A MIMS record is produced automatically for all children when they register with MHSC. Immunization records are entered manually at public health offices, or automatically from physician billing cards containing tariff codes specific for immunizations. For many older children living outside Winnipeg city, immunization records have been back entered from public health records. This has not been possible within the City of Winnipeg since most immunizations are administered by physicians. The physician billing card information has been captured automatically since November 1987; children who lived in Winnipeg prior to that time are likely to have incomplete MIMS records. Records of children whose health care is provided by Medical Services Branch, Health and Welfare Canada, may also be incomplete since direct access to MIMS has been achieved only recently.

The immunization records contained in MIMS are accessible to parents and health care providers. Upon receipt of permission to release the record from the parent/guardian, a copy of the computer record, or an Immunization Certificate can be obtained from the local public health office. MIMS also has provision for noting those immunizations which should not be administered to a child. This information can be entered by any public health office which has a MIMS terminal, and is included in the information provided when record requests are filled.

In addition to its role as an immunization registry, MIMS is also a monitoring system. At specific ages it checks each child's immunization record against the recommended immunization schedule, and generates a letter which is sent to the health care provider of last record if any immunizations are missing. This monitoring occurs at one, two and six years of age. At five years of age MIMS sends a letter to parents of all children, listing the immunizations which the child has had and noting those which appear to be

missing. If measles immunization is recorded, this letter can be used as proof of immunity to measles which is required for school entry. It also serves as a reminder that the preschool booster is due. At six years of age, MIMS also produces an immunization certificate which is wallet sized, and lists all the immunizations which the child has received. As the children in MIMS become older, monitoring for rubella immunization will be added. Because the records of older children within Winnipeg are often incomplete, the full monitoring process is not carried out since it would produce large numbers of requests for information. School entry provides an opportunity for public health to obtain and enter the immunization records of these children.

MIMS produces reports which are essential to public health staff in determining the immunization status of children in their area of service. The Inquiry System can be used to produce lists of children in a health unit or school who are missing, or who have, a particular immunization. This is useful for example in investigating possible measles exposure, since it can produce a list of children who have no record of receiving MMR. This system will also produce lists of children who are missing any of the recommended immunizations. Since MIMS is a population registry, these lists can be used to determine immunization levels in each health unit. The Inquiry System can also be used to produce an Immunization Certificate for any child, at any time.

VALIDATION OF MIMS

1. ENROLLMENT OF ALL CHILDREN

MIMS is based on the registry of the Manitoba Health Services Commission, and receives updates from the registry every two weeks. Checks of the two data bases indicate that the MIMS registry is complete. Children who are missing from MIMS include newborns (it may take up to 3 months for them to be registered with MHSC), and children whose parents are not registered with MHSC. The MHSC registry removes inactive records, i.e., records of persons who have moved out of province or who have died. However, MIMS maintains these records in the active database for two years. This allows late updating of immunization records from physicians' billing cards, and provision of records to people who move. After two years, the inactive records are moved to an historical tape which contains the records of all children who have ever been enrolled in MIMS. These records will be kept for 25 years.

Because MIMS is based on the population registry of Manitoba, it can be used to generate immunization rates for each health unit. This is the basis for this Annual Report. This also means that immunization records for all children are available throughout the province, since all children

are in this system, regardless of where they live or what health unit provides service to them (provincial, municipal or federal).

2. IMMUNIZATION RECORDS

Prior to implementation, a pilot study was carried out to measure the agreement between physician's immunization records, and those of parents. A random sample of 2000 Winnipeg children was included in the study. Agreement between the two record sources was found to be over 90%, sufficient to suggest that information captured by MIMS from physician billing cards would be accurate and could be used in a monitoring system.

Since full implementation of MIMS, it has been demonstrated that the specific codes for each dose of each vaccine are for the most part entered accurately, although because of the volume of immunizations recorded, such coding errors still constitute one of the commonest reasons for recording an immunization as missing. At the present time, MIMS looks for specific immunization tariff codes for each dose of a specific vaccine during the monitoring process, and does not accept two entries for the first DPT (i.e., 8601) as equal to the first and second dose (8601 and 8603). This is being reconsidered in light of the Annual Report which follows and which compares immunization levels measured by exact tariff code for each dose, and by accepting any relevant tariff code as a dose.

ANNUAL REPORTS

The information presented below was generated by analyzing the entire MIMS data base. In future, these reports will be produced in June of each year. All children's records are analyzed, including those which are inactive and those which are empty (no immunizations are recorded), since they all reflect our knowledge of the immunization status in the health region.

The analyses are carried out for each birth year of the children in MIMS. The childrens' ages at the time of the report are noted in the figures. This is to facilitate interpretation of the results since the recommended immunization schedule is of course age-dependent.

The analyses are also carried out for the province as a whole, and by health region. Figure 1 presents the health regions in Manitoba. There are three health jurisdictions in Manitoba. Figure 1 locates and identifies the health regions administered by the provincial government. The provincial government is also responsible for immunization programs in the suburbs of Winnipeg, which are divided into three regions: Winnipeg North, Winnipeg South and Winnipeg West

Central. Winnipeg's central area is the jurisdiction of the City of Winnipeg Health Department, part of the municipal, and referred to below as Winnipeg City . The third health jurisdiction is Medical Services Branch (MSB), Health and Welfare Canada, which provides health care to persons resident on Indian reserves. MSB has main offices in Winnipeg and in Thompson, and health care units in each of the 60 communities it serves.

Note that children under the jurisdiction of Medical Services Branch, have been included in the figures for the provincial health region in which they reside. Separate figures for each of Medical Services Branch's communities will be provided at a later date.

Although this is the 1990 Annual Report, the first birth cohort which is extensively analyzed is that of children born in 1989. This allows late entry of information from physician billing cards, and simple coding errors can be corrected by the monitoring which occurs at one year of age, thereby enhancing the completeness of the information.

The figures and tables in this report are distillations of the basic tables and graphs of the 1990 MIMS Annual Statistical Report, which were produced using mainframe SAS by Mr.James Lakatos, Programmer, MHSC, and Ms Susan van Cuylenburg, Senior Programmer, MHSC. The complete data set is available for review or reproduction at 300-800 Portage Avenue, Manitoba Health. Appendix 1 lists and describes the reports in this data set.

TABLE 1. SUMMARY OF DOSES OF EACH VACCINE ADMINISTERED TO CHILDREN BORN IN 1990, BY PROVIDER; AND THE NUMBER OF CHILDREN FOR WHOM PROVISION OF THE VACCINE IS RESTRICTED.

This table summarizes the number of doses of each immunizing agent administered during 1990 to children born in 1990. It is derived from report A4MI716RPT01, which provides the same information for each birth cohort, by tariff code for each dose of vaccine. The report includes all immunizations administered to these children during 1990, including those not in the recommended schedule, such as hepatitis B vaccine.

The Table indicates that 80.3% of all immunizations administered to children born in 1990 were provided by physicians. The majority of the remainder were provided by public health units (R.H.U., regional health unit), and a few by facilities (OTHER). This percentage is in keeping with the utilization figures provided quarterly for each region, which summarize the number of immunizations given by each type of provider. The total number of immunizations recorded in this Table is low, in keeping with the expected incompleteness of MIMS records for children born in the year

immediately preceding the report year. It is interesting to note that 33 children received MMR in 1990, i.e., before the first birthday. These records will be considered incomplete by the MIMS monitoring system, and by the MIMS Inquiry System.

The column labelled "NUMBER RESTRICT." gives the total number of children for whom a particular immunization is marked "restricted". This information must be entered manually by a public health office, and once entered can only be removed or changed manually. Physicians may have such information entered by contacting their local public health unit. The MIMS monitoring system does not regard such children as unimmunized, and does NOT send letters to health care providers indicating that the child lacks immunization. However, such children are included in lists of children provided to public health units by the MIMS Inquiry System, which clearly identifies the restricted immunization. The letter sent to parents/guardians at the fifth birthday lists the immunization as restricted, and all copies of the child's immunization record will contain this information. Although the actual number of children for whom particular immunizations are not recommended is not known, it is likely that these numbers are too low, and indicate that this facility of MIMS is under-utilized.

TABLE 1. SUMMARY OF DOSES OF EACH VACCINE ADMINISTERED TO CHILDREN BORN IN 1990, BY PROVIDER; AND THE NUMBER OF CHILDREN FOR WHOM PROVISION OF THE VACCINE IS RESTRICTED

VACCINE	DOCTOR	PROVIDER R.H.U.	OTHER	TOTAL	NUMBER RESTRICT.
DPT	23563	5649	197	29409	8
DT	107	21	-	128	-
DPTP	1	1	3	5	-
Td	6	1	1	8	-
DIPHTHERIA	-	1	-	1	-
TETANUS	3	-	-	3	-
OPV	21314	4539	171	26024	3
MMR	23	10	-	33	-
MEASLES	4	138	2	144	-
BCG	35	164	112	311	-
INFLUENZA	7	-	-	7	-
HIB	16	2	-	18	-
HEPATITIS	4	4	1	9	-
TOTAL	45083	10536	487	56106	11

TABLE 2. CENSUS OF CHILDREN IN MIMS WITH ACTIVE AND INACTIVE RECORDS, PROVINCE OF MANITOBA

Report A4MI709RPT1 is a census of all the children in MIMS. This Table is a summary of the information available in that report, for the province as a whole. Note that the total number of children in each birth cohort does change slightly from year to year, as does the percentage of children whose records are inactive. Records become inactive automatically when the child no longer has a valid MHSC registration; for example when a child dies or leaves the province. Recall that at the end of two years of inactivity, the child's MIMS record will be removed from the active database and stored on an historical tape.

The census is provided so that health regions and regional health units can determine their immunization rates, using the MIMS Inquiry System to list the children without a particular immunization record. The census provides the denominator required to calculate such rates. The counts are presented by region, regional health unit, and the year of birth of the child. Such a census will be produced with each annual report.

TABLE 2. CENSUS OF CHILDREN IN MIMS WITH ACTIVE AND INACTIVE RECORDS, PROVINCE OF MANITOBA

YEAR	ACTIVE RECORDS #	ACTIVE RECORDS %	INACTIVE RECORDS #	INACTIVE RECORDS %	TOTAL
1980	16338	93.8	1082	6.2	17420
1981	16416	93.3	1180	6.7	17596
1982	16484	93.4	1166	6.6	17650
1983	16860	93.1	1249	6.9	18109
1984	16927	93.2	1237	6.8	18164
1985	17201	92.7	1347	7.3	18548
1986	17098	92.5	1391	7.5	18489
1987	16973	92.7	1339	7.3	18312
1988	17109	92.6	1368	7.4	18477
1989	17511	94.6	1004	5.4	18515
1990	17501	96.6	601	3.4	18102

TABLE 3A AND 3B. PERCENT OF CHILDREN IN EACH BIRTH COHORT WHO HAVE NO IMMUNIZATIONS RECORDED, BY HEALTH REGION

These tables are based on report A4MI716RPT, which gives the percentage of children in each health region who have NO immunizations entered on their MIMS records. The data are presented by birth cohort. The report indicates how many children have been missed by MIMS and who consequently have no immunizations recorded. This will include children who have in fact had no immunizations, children who have moved into the province and whose immunizations have yet to be entered into MIMS, and children whose records are inactive (moved, died).

The results are a reflection of how immunizations have been entered into MIMS. Records for children living in Winnipeg have not been back-entered; therefore the proportion of children with no immunizations recorded increases sharply for children born in 1987 and earlier, particularily within the. Monitoring of these children has not yet been implemented. Records of children who have attained school age since the inception of MIMS (born in 1984 and 1983), are much less likely to be empty. The majority of older school age children have empty MIMS records. Over time, as physicians' billing cards are entered automatically, the proportion of children with empty records will fall.

For children resident in the suburbs of Winnipeg, blank records are infrequent, since an effort has been made to back-enter immunization records. Monitoring is conducted only at the first and second birthday in these health regions. The proportion of empty records increases for the oldest children.

In all the rural regions except Thompson (northern Manitoba) empty records are less likely at all ages than in the urban regions. All of these regions are monitoring children at one, two, five and six years of age, and previous immunizations have been back-entered. Thompson region has very high levels of empty records. This reflect the large proportion of children resident on Indian reserves in this health region. These children are cared for by Medical Services Branch, which has only recently begun to enter immunization records. They are attempting to back-enter records, and it is expected that the proportion of empty records in Thompson region will be much lower at the next annual report.

The proportion of empty records should be kept in mind when considering the immunization levels discussed below, since these blank records do not necessarily indicate an unimmunized child.

TABLE 3A. PERCENT OF CHILDREN IN EACH BIRTH COHORT WHO HAVE NO IMMUNIZATIONS RECORDED, BY HEALTH REGION

	YEAR OF BIRTH				
REGION	**1989**	**1988**	**1987**	**1986**	**1985**
WPG CITY	9.5	10.0	14.7	34.4	53.4
WPG NORTH	4.9	5.1	6.0	14.2	16.8
WPG SOUTH	8.1	7.2	11.0	16.2	12.4
WPG W.CENTRAL	6.4	6.5	11.9	20.2	12.6
WESTMAN	5.5	6.5	7.1	8.9	7.5
EASTMAN	6.9	5.9	7.0	10.5	8.2
CENTRAL	7.8	5.8	6.0	6.9	6.2
INTERLAKE	8.8	5.2	5.0	7.4	6.2
PARKLANDS	4.3	3.6	3.5	5.4	3.8
NORMAN	6.6	11.2	9.1	9.7	8.4
THOMPSON	23.9	21.5	31.2	32.6	36.4
UNKNOWN	17.1	11.2	9.1	9.1	16.8
TOTAL	8.6	8.0	10.4	17.0	18.7

TABLE 3B. PERCENT OF CHILDREN IN EACH BIRTH COHORT WHO HAVE NO IMMUNIZATIONS RECORDED, BY HEALTH REGION

	YEAR OF BIRTH				
REGION	**1984**	**1983**	**1982**	**1981**	**1980**
WPG CITY	31.4	35.4	64.3	77.5	79.8
WPG NORTH	9.3	7.6	20.6	28.6	31.4
WPG SOUTH	8.2	8.2	14.2	17.8	21.7
WPG W.CENTRAL	8.3	7.4	8.6	11.6	11.4
WESTMAN	5.9	6.5	8.8	10.5	11.9
EASTMAN	6.9	7.0	15.0	15.6	23.0
CENTRAL	4.8	5.5	6.7	7.0	6.9
INTERLAKE	3.2	5.1	11.2	15.5	18.4
PARKLANDS	3.4	3.5	9.8	9.3	15.1
NORMAN	9.5	8.2	12.5	11.0	15.9
THOMPSON	40.7	44.9	42.7	44.6	45.6
UNKNOWN	6.0	14.8	11.0	14.1	17.8
TOTAL	12.8	13.5	22.2	26.4	29.3

CHILDREN BORN IN 1989

The following Tables and Figures pertain to children born in 1989. There are two sets of data presented here which look very similar. The first set of Tables and Figures was generated using the exact tariff code for each dose of vaccine. (The tariff codes for the recommended vaccines and their acceptable alternatives are given in Appendix 2.) The second set (labelled GENERIC) accept any vaccine containing the relevant immunogen as a "dose". For example, in the first set of data, a child would be considered incomplete if they had on their MIMS record two "8601"s and one "8603". These tariff codes refer to the first and third doses of DPT; the second dose is "8602", and would be "missing" in these tables and figures. Note that MIMS looks at the entire first year of life, and would count "8601" and "8603" as the first and third doses of DPT even if "8603" (the third dose) had a service date preceding the service date for "8601".

In the second set of figures, MIMS would count all three doses (two "8601"s and one "8603") in the above example, and consider that the child has completed the infant schedule for DPT. Again, the date of service for each dose is not considered. Note however that MIMS will not accept immunizations with the same tariff code and the same service date.

This comparison is useful in determining whether or not the monitoring component of MIMS should require exact tariff codes for each dose, or whether it is sufficient to determine that a "dose" was given during the relevant age period.

Note that the figures and tables in this report refer to the province as a whole; the data are however available by health region.

FIGURE 2. CUMULATIVE % IMMUNIZED BY AGE IN WEEKS, DIPHTHERIA AND TETANUS TOXOIDS

The figure presents the cumulative percent of children in Manitoba, born in 1989, who have in their MIMS record a first, second and third dose of diphtheria and tetanus toxoid, by age in weeks. It is a summary of reports A4MI720RPT01, 04 and 07. To be counted, the child's record must have had the exact tariff code (or one of the acceptable alternatives) for each particular dose of diphtheria and tetanus toxoids (with or without pertussis).

Note that the majority of children do receive the first dose at or soon after two months of age, and the second dose after eight weeks of age. The third dose is somewhat

delayed, with a peak at 24 to 26 weeks of age. The cumulative per cent immunized falls with each dose, from 88.5% for the first dose to 86.5% for the second dose, and 81.7% for the third dose. Recall that these provincial figures include all children in MIMS, 8.6% of whom have no immunizations recorded and whose immunization status must be considered unknown.

FIGURE 3. CUMULATIVE % IMMUNIZED BY AGE IN WEEKS, POLIO VACCINE (ORAL/INJECTABLE)

This figure refers to children in the province as a whole, and is based on the data in A4MI720RPT02, 05 and 08. All vaccines containing polio antigens were considered acceptable. Oral polio vaccine is recommended in Manitoba, and very few children received inactivated polio vaccine. As expected, oral polio vaccine is administered at the same time as D(P)T. The cumulative percent immunized for each dose is 90.8% for the first dose and 85.6 for the second dose. Although a third dose of polio vaccine at six months of age is no longer recommended, 39.8% of children did receive at least three doses of polio vaccine in the first year of life.

FIGURE 4. CUMULATIVE % IMMUNIZED BY AGE IN WEEKS, PERTUSSIS VACCINE

Again, this figure refers to children in the province as a whole. It is based on the data in A4MI720RPT03, 06 and 09. To be counted as immunized, a child's record must contain the exact tariff code for each dose of vaccine containing pertussis. It is evident from this figure that most children who receive diphtheria and tetanus toxoids in the first year of life also receive pertussis vaccine. The total cumulative % immunized for each dose is nearly identical to those for children who have had diphtheria and tetanus toxoids (Figure 2), 88.1% for the first dose, 85.8% for the second dose and 80.9% for the third dose.

FIGURE 5. CUMULATIVE % IMMUNIZED BY AGE IN WEEKS, COMPLETION OF INFANT PRIMARY SERIES

This figure is based on data from A4MI720RPT10. To be counted, the child's record must have contained the exact tariff codes for each of the three scheduled doses of diphtheria and tetanus toxoids (with or without pertussis vaccine) and at least two doses of polio vaccine (oral or injectable). A total of 77.3% of children have recorded immunizations which meet the recommended schedule for the first year of life. This is slightly lower than the 80.9% of children who have recorded a third dose of DPT (Figure 4). This is some measure of the impact of coding errors, since this Figure looks for all three exact tariff codes, and Figure 4 looks only for the tariff code for the third dose

of DPT, ignoring the presence or absence of the tariff codes for the first and second doses. This is discussed further below.

FIGURE 6. CUMULATIVE % IMMUNIZED BY AGE IN WEEKS, DIPHTHERIA AND TETANUS TOXOIDS (GENERIC)

This figure is based on data from A4MI720RPT12, 14 and 16. To be counted, the child's record must have one, two or three instances of administration of any vaccine containing diphtheria and tetanus toxoids in the first year of life. The presence or absence of pertussis vaccine is not considered. This figure should be compared with Figure 2, which looks at the first, second and third doses of diphtheria and tetanus as recorded by exact tariff code. The total percent of children immunized for each is comparable:

DOSE	TARIFF CODE	GENERIC CODE
FIRST DOSE	88.5%	91.4%
SECOND DOSE	86.4%	87.0%
THIRD DOSE	81.7%	79.7%

This comparison indicates that the use of "generic" codes may more accurately reflect the immunization status of children; the differences are however not large. It should be remembered that the tariff codes have been subjected to at least one round of monitoring by MIMS, with correction of some of the coding errors.

FIGURE 7. CUMULATIVE % IMMUNIZED BY AGE IN WEEKS, PERTUSSIS VACCINE (GENERIC)

This figure is based on data from report A4MI720RPT13, 15 and 17. To be counted, a child's record must contain one, two or three instances of administration of a pertussis-containing vaccine in infancy. This figure may be compared with Figure 4, which presents the cumulative percent of children immunized with each specific tariff code for the three scheduled doses of pertussis vaccine. The total percentages of children immunized in infancy as determined by the exact tariff code for each dose, and by looking for any vaccine containing pertussis, are comparable:

DOSE	TARIFF CODE	GENERIC CODE
FIRST DOSE	88.1%	91.2%
SECOND DOSE	85.8%	86.5%
THIRD DOSE	80.9%	78.5%

These results parallel those for diphtheria and tetanus, given above.

FIGURE 8. CUMULATIVE % IMMUNIZED BY AGE IN WEEKS, COMPLETION OF THE INFANT SERIES (GENERIC)

This figure is based on the data in report A4MI720RPT18 and 19. To be counted, a child's record must contain at least three instances of administration of vaccine containing diphtheria and tetanus toxoids, with or without pertussis, and at least two instances of administration of oral or injectable polio vaccine. This figure can be compared to Figure 5, which looks at completion of the infant schedule by exact tariff code for diphtheria and tetanus toxoids, and pertussis vaccine. The cumulative percent of children with completed series at one year of age is as follows:

DOSE	TARIFF CODE	GENERIC CODE
3-DT/2-POLIO	77.3%	79.5%
3-DPT/2-POLIO	77.3%	78.3%

Again, it is evident that acceptance of administration of any vaccine containing the relevant antigens gives more accurate information about the immunization rates, than does looking at the exact tariff codes for each dose. However, the differences are small.

In this series of figures, no restriction has been placed on the age at administration, in determining whether a dose has been given or not. MIMS can set age restrictions. However, as can be seen from the distributions of ages at which children receive the vaccines, this is not necessary. The vast majority are administered within acceptable age limits.

The following tables look at immunization rates for each health region in Manitoba, and in the province as a whole. Tables 4 and 5 are based on the presence or absence of the exact tariff code for each vaccine dose, and are based on the reports referred to above. The remaining tables are based on acceptance of administration of any vaccine containing the relevant antigens, i.e., on "generic" coding of immunizations, and are based on reports A4MI720RPT20, 21 and 22.

Recall that children resident on Indian reserves are included in the regional statistics, although their health care is provided by Medical Services Branch, Health and Welfare Canada, and their records are, in some instances, incomplete.

TABLE 4. NUMBER AND PERCENT OF CHILDREN WITH AT LEAST 3 DOSES OF DPT AND 2 DOSES OF POLIO VACCINE AT THE FIRST BIRTHDAY

The regional variation in immunization rates as measured by MIMS reflects the completeness of the MIMS records in that region, as well as the actual immunizations administered, and the maintenance of "inactive" records in the MIMS file for two years. The low rates for Thompson region in particular reflect incomplete records in the large population of children served by Medical Services Branch. This will undoubtedly improve now that federal staff have on site access to MIMS. The measured immunization rates are too low in most regions to be acceptable. This should however improve as record completeness improves.

TABLE 5. NUMBER AND PERCENT OF CHILDREN WITH AT LEAST 3 DOSES OF D(P)T AND 2 DOSES OF POLIO VACCINE AT THE FIRST BIRTHDAY

This table provides the same information as Table 4, with the exception that administration of pertussis vaccine is not considered. Again, the measured coverage rates are too low to induce complacency, and indicate that work must be done to identify those children whose records are incomplete. This will, to some extent, occur automatically through the MIMS monitoring process which will assess these records again at the second and sixth birthdays.

TABLE 6. NUMBER AND PERCENT OF CHILDREN WITH 0, 1, 2 OR 3 OR MORE DOSES OF OPV/IPV FROM BIRTH TO THE FIRST BIRTHDAY

The figures and tables above have either looked at the presence/absence of the exact tariff codes for each dose, or the presence of a minimum number of doses of each antigen. This table considers the total number of doses of each antigen which was administered to children in infancy. It gives a measure, by health region, of the number and percent of children with no doses of polio vaccine recorded, the number with an inadequate number of doses (less than two), the number with the recommended number of doses (two), and the number with more than the recommended number of doses (greater than or equal to three). (Note that these divisions are discrete, not cumulative, so that each child is counted only once in this tables). The majority of children are adequately immunized agains polio by the first birthday. Almost 40% may be considered overimmunized, having received three or more doses. This varies considerably from region to region, and is most common in Winnipeg.

TABLE 7. NUMBER AND PERCENT OF CHILDREN WITH 0, 1-2, 3 OR 4 OR MORE DOSES OF D(P)T FROM BIRTH TO THE FIRST BIRTHDAY

This table considers the number of doses of diphtheria and tetanus toxoids administered during infancy, regardless of administration of pertussis vaccine. As in the table above, there is considerable variation from region to region, and the overall percent of children in the province with three or more doses is low (79.7%).

TABLE 8. NUMBER AND PERCENT OF CHILDREN WITH 0, 1-2, 3, OR 4 OR MORE DOSES OF PERTUSSIS VACCINE FROM BIRTH TO THE FIRST BIRTHDAY

This table considers the number of doses of any vaccine containing pertussis as one of its components, administered during infancy. The percent of children with 3 or more doses is 78.5%, slightly lower than the 79.7% of children who have had 3 doses of diphtheria and tetanus toxoids.

TABLE 4. NUMBER AND PERCENT OF CHILDREN WITH AT LEAST 3 DOSES OF DPT AND 2 DOSES OF POLIO AT THE FIRST BIRTHDAY

REGION	NUMBER	PERCENT
CITY OF WINNIPEG	2884	75.6
THOMPSON	542	40.6
WINNIPEG NORTH	2098	87.8
WINNIPEG SOUTH	2506	84.0
WINNIPEG WEST CENTRAL	770	84.9
WESTMAN	1475	84.2
EASTMAN	1156	80.2
CENTRAL	1304	81.0
INTERLAKE	784	74.3
PARKLANDS	542	85.2
NORMAN	395	77.2
UNKNOWN	40	45.5
PROVINCE	14496	78.3

TABLE 5. NUMBER AND PERCENT OF CHILDREN WITH AT LEAST 3 DOSES OF D(P)T AND 2 DOSES OF POLIO VACCINE AT THE FIRST BIRTHDAY

REGION	NUMBER	PERCENT
CITY OF WINNIPEG	2921	76.6
THOMPSON	543	40.7
WINNIPEG NORTH	2121	88.7
WINNIPEG SOUTH	2551	85.5
WINNIPEG WEST CENTRAL	778	85.8
WESTMAN	1490	85.1
EASTMAN	1170	81.2
CENTRAL	1339	83.2
INTERLAKE	813	77.1
PARKLANDS	549	86.3
NORMAN	398	77.7
UNKNOWN	41	46.6
PROVINCE	14714	79.5

TABLE 6. NUMBER AND PERCENT OF CHILDREN WITH 0, 1, 2 OR 3 OR MORE DOSES OF OPV/IPV FROM BIRTH TO THE FIRST BIRTHDAY

REGION	NONE	ONE	TWO	>=3
CITY OF WPG	384/10.1%	208/5.5%	1305/34.2%	1919/50.3%
THOMPSON	365/27.8%	255/19.3%	460/34.4%	245/18.6%
WPG NORTH	120/5.0%	57/2.4%	658/27.5%	1555/65.1%
WPG SOUTH	250/8.4%	79/2.7%	1079/36.2%	1576/52.8%
WPG W.CENT.	59/6.5%	27/3.0%	335/36.9%	486/53.6%
WESTMAN	103/5.9%	72/4.1%	1473/84.1%	104/5.9%
EASTMAN	112/7.8%	72/5.0%	671/46.6%	586/40.7%
CENTRAL	128/8.0%	67/4.2%	1125/69.9%	289/18.0%
INTERLAKE	100/9.5%	67/6.4%	448/42.5%	440/41.7%
PARKLANDS	27/4.3%	23/3.6%	470/73.9%	116/18.2%
NORMAN	34/6.6%	21/4.1%	418/81.6%	39/7.6%
UNKNOWN	16/18.2%	16/18.2%	51/57.9%	5/5.7%

PROVINCE	1698/9.2%	964/5.2%	8493/45.9%	7360/39.7%

TABLE 7. NUMBER AND PERCENT OF CHILDREN WITH 0, 1 - 2, 3 OR 4 OR MORE DOSES OF D(P)T FROM BIRTH TO THE FIRST BIRTHDAY (GENERIC)

REGION	NONE	1 - 2	3	>=4
CITY OF WPG	362/9.5%	515/13.5%	2869/75.2%	70/1.8%
THOMPSON	317/24.1%	456/34.5%	532/39.9%	20/1.5%
WPG NORTH	117/4.9%	149/6.2%	2087/87.3%	37/1.5%
WPG SOUTH	243/8.1%	187/6.3%	2509/84.1%	45/1.5%
WPG W.CENT.	58/6.4%	71/7.8%	768/84.7%	10/1.1%
WESTMAN	97/5.5%	113/9.3%	1484/84.7%	8/0.5%
EASTMAN	100/6.9%	168/11.7%	1165/80.8%	8/0.6%
CENTRAL	126/7.8%	144/9.0%	1330/82.6%	9/1.6%
INTERLAKE	93/8.8%	147/13.9%	804/76.2%	11/1.1%
PARKLANDS	27/4.3%	57/9.0%	544/85.5%	8/1.2%
NORMAN	34/6.6%	80/15.6%	398/77.7%	--
UNKNOWN	15/17.1%	31/35.2%	40/45.5%	2/2.2%
PROVINCE	1589/8.6%	2168/11.7%	14530/78.5%	228/1.2%

TABLE 8. NUMBER AND PERCENT OF CHILDREN WITH 0, 1 - 2, 3 OR 4 OR MORE DOSES OF PERTUSSIS VACCINE FROM BIRTH TO THE FIRST BIRTHDAY (GENERIC)

REGION	NONE	1 - 2	3	>=4
CITY OF WPG	371/9.7%	544/14.3%	2840/74.4%	61/1.6%
THOMPSON	317/24.1%	457/34.6%	531/39.8%	20/1.5%
WPG NORTH	123/5.2%	167/7.0%	2067/86.5%	33/1.4%
WPG SOUTH	252/8.5%	223/7.5%	2469/82.7%	40/1.3%
WPG W.CENT.	58/6.4%	79/8.7%	760/83.8%	10/1.1%
WESTMAN	100/5.7%	176/10.1%	1468/83.8%	8/0.4%
EASTMAN	102/7.1%	180/12.5%	1152/79.9%	7/0.5%
CENTRAL	133/8.3%	172/10.7%	1295/80.5%	9/0.5%
INTERLAKE	95/9.0%	176/16.6%	776/73.6%	8/.8%
PARKLANDS	28/4.4%	65/10.2%	538/84.6%	5/0.8%
NORMAN	35/6.8%	82/16.0%	395/77.2%	--
UNKNOWN	16/18.2%	31/35.2%	39/44.3%	2/2.3%
PROVINCE	1630/8.8%	2352/12.7%	14330/77.4%	203/1.1%

CHILDREN BORN IN 1988

The following figure and tables pertain to children born in 1988, and look at their immunization experience in the second year of life. According to the recommended provincial immunization schedule, children should enter the second year of life having already received three doses of DPT and 2 doses of polio vaccine. During the second year of life they should receive one dose of measles, mumps and rubella vaccine (MMR), a fourth dose of DPT and a third dose of polio vaccine, if not already administered.

TABLE 9. NUMBER AND PERCENT OF CHILDREN WITH 3 DOSES OF DT (DPT) AND 2 DOSES OF OPV/IPV AT FIRST BIRTHDAY

This table is based on the data in reports A4MI730RPT08 and 09A. It documents the immunization rates of children in each health region as they entered the second year of life. The results in this table can be compared to those in Table 4 and 5, which look at children at one year of age who were born in 1989 rather than 1988.

VACCINE	1989	1988
3-DT/2-POLIO	79.5%	80.3%
3-DPT/2-POLIO	78.3%	79.3%

The records of children born in 1988 have been subjected to two rounds of monitoring, and therefore can be expected to be more complete than those of children born in 1989. This likely accounts for the slight increase in immunization rates in these children.

TABLE 10. NUMBER AND PERCENT OF CHILDREN WITH 3 DOSES OF DT (DPT) AND 2 DOSES OF OPV/IPV AT SECOND BIRTHDAY

This table is based on the data in reports A4MI730RPT08B and 09B. It looks at the number of children who, at the second birthday, have had at least 3 doses of DT or DPT and two doses of polio vaccine. When compared with Table 9, it indicates how many more children have received at least the "infant" immunization series by the second birthday:

VACCINE	FIRST BIRTHDAY	SECOND BIRTHDAY
3-DT/2-POLIO	80.3%	84.8%
3-DPT/2-POLIO	79.3%	83.9%

Note that these children have received AT LEAST 3 doses of D(P)T and 2 doses of polio vaccine; they may well have received more as described below. Some of the apparent increase may be due to improved records due to the second round of monitoring.

TABLE 11. NUMBER AND PERCENT OF CHILDREN WITH AT LEAST THREE OR AT LEAST FOUR DOSES OF DIPHTHERIA/TETANUS TOXOIDS AT FIRST AND SECOND BIRTHDAY

This table is based on data from reports A4MI730RPT07A and 07B. It follows the immunization rates for diphtheria and tetanus toxoids from the first to the second birthday. Note that by the second birthday, only 68.6% of children in the province have four immunizations with DT recorded in their MIMS records, although 84.9% have had three doses. Some of the difference may be due to late reporting of immunization.

TABLE 12. NUMBER AND PERCENT OF CHILDREN WITH AT LEAST THREE DOSES OR AT LEAST FOUR DOSES OF PERTUSSIS VACCINE AT FIRST AND SECOND BIRTHDAY.

This table is based on data from reports A4MI730RPT05A and 05B. The results are similar to those in Table 11, with an overall immunization rate of 66.8% for children in the province at the second birthday. As with the 1989 cohort, it appears that children who receive DT also receive pertussis vaccine.

TABLE 13. NUMBER AND PERCENT OF CHILDREN WITH AT LEAST TWO OR THREE DOSES OF OPV/IPV AT FIRST AND SECOND BIRTHDAY

This table is based on reports A4MI730RPT06A and 06B. Although most children are adequately immunized at one year of age (85.8% have had two or more doses of polio vaccine), there is some catch-up in the second year of life (87.7% have at least doses by then). However, the overall immunization rate for Manitoba is only 77.3%. This is likely a combination of the 40% of children who received 3 doses of polio vaccine in infancy, and some children who received an additional dose in the second year of life. This needs to be improved.

TABLE 14. NUMBER AND PERCENT OF CHILDREN WITH 4 DOSES OF DT (DPT) AND 3 DOSES OF OPV/IPV AT FIRST BIRTHDAY

TABLE 15. NUMBER AND PERCENT OF CHILDREN WITH 4 DOSES OF DT (DPT) AND 3 DOSES OF OPV/IPV AT SECOND BIRTHDAY

These two tables are based on reports A4MI730RPT10A and 10B. They compare the number and percent of children adequately immunized for a two year old, at the first birthday and the second birthday. As anticipated, very few children have had four doses of D(P)T and three doses of polio vaccine by one year of age (Table 14). By the second birthday, however, 66.5% of children in the province have immunization records consistent with the provincial recommendations. This low figure should increase with further monitoring activities.

TABLE 16. NUMBER AND PERCENT OF CHILDREN WITH AT LEAST ONE DOSE OF MMR ADMINISTERED

This table is based on the data in reports A4MI730RPT01A and 01B. The first two columns of the table give the absolute number of children who receive measles, mumps and rubella vaccine (MMR) before the first birthday, and the number who received it in the two week period before the first birthday. Of the total of 421 children immunized prematurely, 351 were immunized within 2 weeks of the first birthday. MIMS will consider those children unimmunized when the records are monitored. This report also ignores immunizations with single measles vaccine, which is very rare in Manitoba with the exception of children on Indian reserves who have in the past been immunized with measles vaccine at six months of age. The measured immunization rate of 80.1% is too low to prevent outbreaks, but again is an underestimate of actual immunity because of incomplete and inactive records.

FIGURE 9. CUMULATIVE PERCENT IMMUNIZED, 1988 COHORT, FROM FIRST TO SECOND BIRTHDAY, DIPHTHERIA AND TETANUS TOXOIDS, PERTUSSIS VACCINES, AND MMR

This figure is based on data in reports A4MI730RPT01B, 02 and 03. To be counted, a child's record would have to recorded at least four instances of D(P)T, with the fourth instance in the second year of life. MMR must have been administered on or after the first birthday. Most children receive MMR in the first three months of the second year. The fourth dose of D(P)T tends to be given late, after 18 months of age. A greater percentage of children receive DT rather than DPT, compared to infancy.

TABLE 9. NUMBER AND PERCENT OF CHILDREN WITH 3 DOSES OF DT (DPT) AND 2 DOSES OF OPV/IPV AT FIRST BIRTHDAY

REGION	NUMBER		PERCENT	
	DT	DPT	DT	DPT
CITY OF WINNIPEG	2663	2634	76.2	75.3
THOMPSON	572	569	45.2	45.0
WINNIPEG NORTH	2380	2351	87.8	86.7
WINNIPEG SOUTH	2494	2456	85.5	84.2
WINNIPEG W.CENTRAL	760	750	86.5	85.3
WESTMAN	1548	1535	84.6	83.9
EASTMAN	1147	1133	80.0	79.0
CENTRAL	1437	1401	84.8	82.7
INTERLAKE	903	891	85.0	83.9
PARKLANDS	506	499	87.1	85.9
NORMAN	366	362	73.2	72.4
UNKNOWN	67	65	62.6	60.8
PROVINCE	14843	14646	80.3	79.3

TABLE 10. NUMBER AND PERCENT OF CHILDREN WITH 3 DOSES OF DT (DPT) AND 2 DOSES OF OPV/IPV AT SECOND BIRTHDAY

REGION	NUMBER		PERCENT	
	DT	DPT	DT	DPT
CITY OF WINNIPEG	2852	2823	81.6	80.8
THOMPSON	663	660	52.4	52.2
WINNIPEG NORTH	2463	2441	90.8	90.0
WINNIPEG SOUTH	2564	2537	87.8	86.9
WINNIPEG W.CENTRAL	786	781	89.4	88.9
WESTMAN	1624	1615	88.7	88.3
EASTMAN	1222	1211	85.2	84.5
CENTRAL	1523	1493	89.9	88.1
INTERLAKE	944	930	88.9	87.6
PARKLANDS	548	543	94.3	93.5
NORMAN	410	404	82.0	80.8
UNKNOWN	68	67	63.6	62.6
PROVINCE	15667	15505	84.8	83.9

TABLE 11. NUMBER AND PERCENT OF CHILDREN WITH AT LEAST THREE OR AT LEAST FOUR DOSES OF DIPHTHERIA/TETANUS AT FIRST AND SECOND BIRTHDAY

	>3 DOSES AT 1ST BIRTHDAY		AT SECOND BIRTHDAY >=3 DOSES		>=4 DOSES	
REGION	NO.	%	NO.	%	NO.	%
CITY OF WPG	2671	76.4	2858	81.8	2188	62.6
THOMPSON	574	45.4	668	52.9	422	33.4
WPG NORTH	2384	87.9	2464	90.9	2106	77.7
WPG SOUTH	2498	85.6	2566	87.9	2185	74.9
WPG W.CENTRAL	760	86.5	786	89.4	650	73.9
WESTMAN	1549	84.6	1627	88.9	1354	74.0
EASTMAN	1148	80.1	1223	85.3	986	68.8
CENTRAL	1438	84.8	1523	90.0	1261	74.4
INTERLAKE	904	85.1	945	89.0	756	71.2
PARKLANDS	506	87.1	548	94.3	448	77.1
NORMAN	367	73.4	410	82.0	298	59.6
UNKNOWN	67	62.6	68	63.6	20	18.7
PROVINCE	14866	80.5	15686	84.9	12674	68.6

TABLE 12. NUMBER AND PERCENT OF CHILDREN WITH AT LEAST THREE DOSES OF PERTUSSIS VACCINE AT FIRST AND SECOND BIRTHDAY

	>3 DOSES AT 1ST BIRTHDAY		AT SECOND BIRTHDAY >=3 DOSES		>=4 DOSES	
REGION	NO.	%	NO.	%	NO.	%
CITY OF WPG	2641	75.5	2829	80.9	2131	61.0
THOMPSON	571	45.2	665	52.6	413	32.7
WPG NORTH	2353	86.8	2442	90.0	2052	75.7
WPG SOUTH	2460	84.3	2541	87.1	2123	72.8
WPG W.CENTRAL	750	85.3	781	88.9	629	71.6
WESTMAN	1536	83.9	1617	88.4	1336	73.0
EASTMAN	1134	79.1	1212	84.5	968	67.5
CENTRAL	1402	82.7	1493	88.1	1215	71.7
INTERLAKE	892	84.0	931	87.7	728	68.5
PARKLANDS	499	85.9	543	93.5	439	75.6
NORMAN	362	72.4	404	80.8	296	59.2
UNKNOWN	65	60.7	67	62.6	18	16.8
PROVINCE	14665	79.4	15523	84.0	12346	66.8

TABLE 13. NUMBER AND PERCENT OF CHILDREN WITH AT LEAST TWO OR THREE DOSES OF OPV/IPV AT FIRST AND SECOND BIRTHDAY

	>2 DOSES AT 1ST BIRTHDAY		AT SECOND BIRTHDAY >=2 DOSES		>=3 DOSES	
REGION	NO.	%	NO.	%	NO.	%
CITY OF WPG	2920	83.5	2995	85.7	2635	75.4
THOMPSON	684	54.2	751	59.5	552	43.7
WPG NORTH	2488	91.7	2515	92.8	2396	88.3
WPG SOUTH	2583	88.5	2610	89.4	2466	84.5
WPG W.CENTRAL	796	90.6	800	91.0	744	84.6
WESTMAN	1634	89.3	1662	90.6	1386	75.7
EASTMAN	1232	85.9	1268	88.4	1115	77.8
CENTRAL	1527	90.1	1561	90.1	1338	78.9
INTERLAKE	958	90.2	980	92.3	837	78.8
PARKLANDS	538	92.6	554	95.4	468	80.6
NORMAN	408	81.6	434	86.8	309	61.8
UNKNOWN	80	74.8	83	77.6	29	27.1
PROVINCE	15848	85.8	16213	87.7	14275	77.3

TABLE 14. NUMBER AND PERCENT OF CHILDREN WITH 4 DOSES OF DT (DPT) AND 3 DOSES OF OPV/IPV AT FIRST BIRTHDAY

REGION	NUMBER		PERCENT	
	DT	DPT	DT	DPT
CITY OF WINNIPEG	77	71	2.2	2.0
THOMPSON	4	4	.3	.3
WINNIPEG NORTH	45	42	1.7	1.6
WINNIPEG SOUTH	37	35	1.3	1.2
WINNIPEG W.CENTRAL	7	7	.8	.8
WESTMAN	8	8	.4	.4
EASTMAN	9	8	.6	.6
CENTRAL	3	3	.2	.2
INTERLAKE	13	12	1.2	1.1
PARKLANDS	3	3	.5	.5
NORMAN	1	1	.2	.2
UNKNOWN	-	-	-	-
PROVINCE	207	194	1.1	1.0

TABLE 15. NUMBER AND PERCENT OF CHILDREN WITH 4 DOSES OF DT (DPT) AND 3 DOSES OF OPV/IPV AT SECOND BIRTHDAY

REGION	NUMBER		PERCENT	
	DT	DPT	DT	DPT
CITY OF WINNIPEG	2177	2123	62.3	60.7
THOMPSON	416	408	32.9	32.3
WINNIPEG NORTH	2102	2050	77.5	75.6
WINNIPEG SOUTH	2181	2117	74.7	72.6
WINNIPEG W.CENTRAL	648	627	73.7	71.3
WESTMAN	1350	1333	73.8	72.8
EASTMAN	980	963	68.3	67.2
CENTRAL	1259	1213	74.3	71.6
INTERLAKE	740	714	69.7	67.2
PARKLANDS	448	439	77.1	75.6
NORMAN	292	291	58.4	58.2
UNKNOWN	20	18	18.7	16.8
PROVINCE	12613	12296	68.3	66.5

TABLE 16. NUMBER AND PERCENT OF CHILDREN WITH AT LEAST ONE DOSE OF MMR ADMINISTERED

	# DOSES BEFORE 1ST BIRTHDAY		# CHILDREN WITH >= 1 DOSE ON AFTER THE FIRST BIRTHDAY	
REGION	TOTAL	<2 WKS	NUMBER	PERCENT
CITY OF WPG	82	69	2648	75.7
THOMPSON	46	32	704	55.7
WPG NORTH	77	63	2303	84.9
WPG SOUTH	57	50	2442	83.7
WPG W.CENTRAL	29	27	720	81.9
WESTMAN	23	17	1547	84.5
EASTMAN	49	45	1138	79.4
CENTRAL	18	15	1454	85.8
INTERLAKE	27	24	879	82.8
PARKLANDS	7	5	531	91.4
NORMAN	6	4	385	71.6
UNKNOWN	-	-	44	41.1
PROVINCE	421	351	14795	80.1

CHILDREN BORN IN 1987 TO 1980

In the remainder of the Annual Report, a set of tables is presented for each birth year, summarizing:

-the number of doses of pertussis vaccine administered since birth, based on report A4MI740RPT01.
-the number of doses of polio vaccine administered since birth, based on report A4MI740RPT02.
-the number of doses of diphtheria/tetanus toxoids administered since birth, based on report A4MI740RPT03.
-the number and percent of children with at least one dose of MMR administered since birth, based on report A4MI740RPT04.
-the number and percent of children whose records meet or exceed the recommended immunization schedule for age, based on reports A4MI740RPT06 and 07.

These summary reports have been chosen because MIMS only began recording physician administered immunizations in late 1987, and because several health regions have not back-entered immunization records prior to that time. Therefore, the immunization rates given below are a minimum, and likely reflect incompleteness of recording rather than actual lack of immunity. Completeness of records is not constant from birth cohort to cohort; contact with school or kindergarten results in an improvement of records, as was discussed above in Table 3A. As with the data for the 1988 cohort, all of the statistics below reflect the number of doses of any vaccine containing the relevant immunogen (i.e, generic rather than specific tariff codes).

1987 BIRTH COHORT

These tables look at children born in 1987, and examine their immunization experience from the second to the third birthday. In rural regions, these records will have been subjected to two rounds of monitoring; this has however not been implemented in Winnipeg, or for Status Indian children. Note that in the City of Winnipeg, the measured immunization rates fall drastically for the 1987 cohort, reflecting the fact that most immunization are administered by physicians and therefore were not captured by MIMS for most of this birth cohort.

TABLE 17. TOTAL NUMBER OF DOSES OF PERTUSSIS VACCINE SINCE BIRTH

This table counts all instances of administration of any pertussis-containing vaccine since birth. According to the provincial schedule, these children should have received 4 doses of pertussis by the third birthday; only 61.4% have 4 doses recorded in their MIMS record.

TABLE 18. TOTAL NUMBER OF DOSES OF POLIO VACCINE SINCE BIRTH

This table counts all instances of administration of polio vaccine since birth. The recommended number of doses for children at the third birthday is 3; 71.3% of children have recorded at least 3 doses of polio vaccine since birth.

TABLE 19. TOTAL NUMBER OF DOSES OF DIPHTHERIA/TETANUS TOXOIDS SINCE BIRTH

This table counts all instances of administration of diphtheria and tetanus toxoids, regardless of pertussis vaccine. As in previous birth cohorts, however, most children who receive DT also receive pertussis vaccine (63.1% received DT; 61.4% received DPT).

TABLE 20. NUMBER AND PERCENT OF CHILDREN WITH AT LEAST ONE DOSE OF MMR ON OR AFTER THE FIRST BIRTHDAY

Measured immunization rates for this vaccine are high for all regions, with the exception of Thompson region and the City of Winnipeg. The level of 81.5% is comparable with the 1988 cohort. Again, single measles, mumps or rubella immunizations have been ignored.

TABLE 21. NUMBER AND PERCENT OF CHILDREN WITH 4 DOSES OF DT (DPT) AND 3 DOSES OF OPV/IPV SINCE BIRTH

The percent of children with records indicating adequate immunization for age is 62.5 for DT, and 60.9 for DPT. Large regional variations are again evident.

TABLE 17. TOTAL NUMBER OF DOSES OF PERTUSSIS SINCE BIRTH

REGION	ZERO		1 - 3 DOSES		>=4 DOSES	
	NO.	%	NO.	%	NO.	%
CITY OF WPG	523	15.8	1855	55.9	941	28.3
WPG NORTH	184	6.6	783	28.1	1822	65.3
WPG SOUTH	339	11.5	797	26.9	1825	61.6
WPG W.CENTRAL	108	12.8	258	30.5	480	56.7
WESTMAN	134	7.3	230	12.5	1476	80.2
EASTMAN	106	7.3	277	18.9	1080	73.8
CENTRAL	106	6.3	219	13.0	1357	80.7
INTERLAKE	52	5.2	158	15.8	793	79.0
PARKLANDS	25	3.6	60	8.6	601	86.6
NORMAN	46	9.3	98	19.7	352	71.0
THOMPSON	347	31.0	311	27.8	460	41.1
UNKNOWN	15	14.9	43	42.5	43	42.6
PROVINCE	1985	10.8	5089	27.8	11238	61.4

TABLE 18. TOTAL NUMBER OF DOSES OF POLIO VACCINE SINCE BIRTH

	ZERO		1 - 2 DOSES		>=3 DOSES	
REGION	NO.	%	NO.	%	NO.	%
CITY OF WPG	514	15.5	1321	39.8	1484	44.7
WPG NORTH	176	6.3	456	16.3	2157	77.4
WPG SOUTH	333	11.3	450	15.2	2178	73.5
WPG W.CENTRAL	103	12.2	142	16.8	601	71.0
WESTMAN	135	7.3	164	8.9	1541	83.8
EASTMAN	110	7.5	146	10.0	1207	82.5
CENTRAL	106	6.3	130	7.7	1446	86.0
INTERLAKE	52	5.2	120	12.0	831	82.8
PARKLANDS	24	3.5	48	6.9	622	89.6
NORMAN	45	9.1	73	14.7	378	76.2
THOMPSON	355	31.8	210	18.8	553	49.4
UNKNOWN	17	16.8	32	31.7	52	51.5
PROVINCE	1970	10.8	3292	18.0	13050	71.3

TABLE 19. TOTAL NUMBER OF DOSES OF DIPHTHERIA/TETANUS TOXOIDS SINCE BIRTH

	ZERO		1 - 3 DOSES		>=4 DOSES	
REGION	NO.	%	NO.	%	NO.	%
CITY OF WPG	494	14.9	1857	56.0	968	29.2
WPG NORTH	169	6.1	742	26.6	1878	67.3
WPG SOUTH	329	11.1	745	25.2	1887	63.7
WPG W.CENTRAL	103	12.2	250	29.6	493	58.2
WESTMAN	131	7.1	193	10.5	1516	82.4
EASTMAN	103	7.0	260	17.8	1100	75.2
CENTRAL	101	6.0	172	10.2	1409	83.8
INTERLAKE	50	5.0	147	14.7	806	80.3
PARKLANDS	24	3.5	52	7.5	618	89.0
NORMAN	45	9.1	93	18.7	358	72.2
THOMPSON	346	31.0	305	27.3	467	41.7
UNKNOWN	15	14.9	43	42.6	43	42.5
PROVINCE	1910	10.4	4859	26.5	11543	63.1

TABLE 20. NUMBER AND PERCENT OF CHILDREN WITH AT LEAST ONE DOSE OF MMR ADMINISTERED ON OR AFTER THE FIRST BIRTHDAY

REGION	NUMBER	PERCENT
CITY OF WINNIPEG	2496	75.2
WINNIPEG NORTH	2447	87.7
WINNIPEG SOUTH	2380	80.4
WINNIPEG W.CENTRAL	674	80.0
WESTMAN	1611	87.6
EASTMAN	1233	84.3
CENTRAL	1490	88.6
INTERLAKE	891	88.8
PARKLANDS	647	93.2
NORMAN	412	83.1
THOMPSON	569	50.7
UNKNOWN	62	70.5
PROVINCE	14916	81.5

TABLE 21. NUMBER AND PERCENT OF CHILDREN WITH 4 DOSES OF DT (DPT) AND 3 DOSES OF OPV/IPV SINCE BIRTH

REGION	NUMBER		PERCENT	
	DT	DPT	DT	DPT
CITY OF WINNIPEG	957	932	28.8	28.1
WINNIPEG NORTH	1873	1818	67.2	65.2
WINNIPEG SOUTH	1876	1817	63.4	61.4
WINNIPEG W.CENTRAL	489	476	57.8	56.3
WESTMAN	1508	1470	82.0	79.9
EASTMAN	1094	1074	74.8	73.4
CENTRAL	1407	1356	83.7	80.6
INTERLAKE	766	755	76.4	75.3
PARKLANDS	616	607	88.8	87.5
NORMAN	357	352	72.0	71.0
THOMPSON	464	457	41.2	40.6
UNKNOWN	40	40	45.5	45.5
PROVINCE	11447	11154	62.5	60.9

1986 BIRTH COHORT

These tables look at children born in 1986, and examine their immunization experience from the third to the fourth birthday. Records of children in this age group will not yet have been monitored, since they are too old to have been monitored at one or two years of age, and are not yet six.

TABLE 22. TOTAL NUMBER OF DOSES OF PERTUSSIS VACCINE SINCE BIRTH

This table counts all instances of administration of any pertussis-containing vaccine since birth. According to the provincial schedule, these children should have received 4 doses of pertussis by the fourth birthday; only 56.6% have 4 or more doses recorded in their MIMS record. The percentage of children with 4 or more doses recorded is highest in the rural regions, which have back-entered the records.

TABLE 23. TOTAL NUMBER OF DOSES OF POLIO VACCINE SINCE BIRTH

This table counts all instances of administration of polio vaccine since birth. The recommended number of doses for children at the fourth birthday is 3; 62.0% of children have recorded at least 3 doses of polio vaccine since birth.

TABLE 24. TOTAL NUMBER OF DOSES OF DIPHTHERIA/TETANUS TOXOIDS SINCE BIRTH

This table counts all instances of administration of diphtheria and tetanus toxoids, regardless of administration of pertussis vaccine. As in previous birth cohorts most children who received DT also received pertussis vaccine (57.9% received DT; 56.6% received DPT).

TABLE 25. NUMBER AND PERCENT OF CHILDREN WITH AT LEAST ONE DOSE OF MMR ADMINISTERED ON OR AFTER THE FIRST BIRTHDAY

Measured immunization rates for this vaccine are high for the rural regions, with the exception of Thompson. The provincial level of 67.4 compares with 81.5% for the 1987 cohort. Again, single measles, mumps or rubella immunizations are not included in the tabulations.

TABLE 26. NUMBER AND PERCENT OF CHILDREN WITH 4 DOSES OF DT (DPT) AND 3 DOSES OF OPV/IPV SINCE BIRTH

The percent of children with records indicating adequate immunization for age is 63.6 for DT, and 63.6 for DPT. Highest immunization rates are recorded in the southern rural regions of the province.

TABLE 22. TOTAL NUMBER OF DOSES OF PERTUSSIS VACCINE SINCE BIRTH

	ZERO		1 - 3 DOSES		>=4 DOSES	
REGION	NO.	%	NO.	%	NO.	%
CITY OF WPG	1176	37.0	1649	51.9	353	11.1
WPG NORTH	408	15.1	802	29.7	1490	55.2
WPG SOUTH	512	16.7	672	21.9	1889	61.4
WPG W.CENTRAL	181	20.8	216	24.8	474	54.4
WESTMAN	167	9.1	319	17.3	1360	73.6
EASTMAN	167	10.7	252	16.1	1114	73.2
CENTRAL	124	7.0	210	11.9	1434	81.1
INTERLAKE	87	7.8	160	14.3	873	77.9
PARKLANDS	36	5.4	56	8.4	574	86.2
NORMAN	49	9.7	76	15.1	378	75.2
THOMPSON	376	32.9	313	27.4	453	39.7
UNKNOWN	8	13.3	14	23.3	38	63.4
PROVINCE	3291	17.8	4739	25.6	10459	56.6

TABLE 23. TOTAL NUMBER OF DOSES OF POLIO VACCINE SINCE BIRTH

	ZERO		1 - 2 DOSES		>=3 DOSES	
REGION	NO.	%	NO.	%	NO.	%
CITY OF WPG	1113	35.0	1617	50.9	448	14.1
WPG NORTH	392	14.5	618	22.9	1690	62.6
WPG SOUTH	506	16.5	459	14.9	2108	68.6
WPG W.CENTRAL	178	20.4	169	19.4	524	60.2
WESTMAN	167	9.1	213	11.5	1466	79.4
EASTMAN	169	10.8	152	9.7	1241	79.4
CENTRAL	123	7.0	111	6.3	1534	86.7
INTERLAKE	83	7.4	127	10.4	910	81.2
PARKLANDS	36	5.4	46	6.9	584	87.7
NORMAN	49	9.7	52	10.3	402	80.0
THOMPSON	377	33.0	243	21.3	522	45.7
UNKNOWN	7	11.7	12	20.0	41	68.3
PROVINCE	3200	17.3	3819	20.7	11470	62.0

TABLE 24. TOTAL NUMBER OF DOSES OF DIPHTHERIA/TETANUS TOXOIDS SINCE BIRTH

	ZERO		1 - 3 DOSES		>=4 DOSES	
REGION	NO.	%	NO.	%	NO.	%
CITY OF WPG	1102	34.7	1711	53.8	365	11.5
WPG NORTH	386	14.3	788	29.2	1526	56.5
WPG SOUTH	500	16.3	630	20.5	1943	63.2
WPG W.CENTRAL	176	20.2	209	24.0	486	55.8
WESTMAN	164	8.9	289	15.7	1393	75.4
EASTMAN	165	10.6	244	15.6	1153	73.8
CENTRAL	122	6.9	160	9.0	1486	84.1
INTERLAKE	83	7.4	149	13.3	888	79.3
PARKLANDS	36	5.4	46	6.9	584	87.7
NORMAN	49	9.7	63	12.5	391	77.8
THOMPSON	375	32.8	312	27.3	455	39.9
UNKNOWN	7	11.7	15	25.0	38	63.3
PROVINCE	3165	17.1	4616	25.0	10708	57.9

TABLE 25. NUMBER AND PERCENT OF CHILDREN WITH AT LEAST ONE DOSE OF MMR ADMINISTERED ON OR AFTER THE FIRST BIRTHDAY

REGION	NUMBER	PERCENT
CITY OF WINNIPEG	1124	35.4
WINNIPEG NORTH	1825	67.6
WINNIPEG SOUTH	2122	69.1
WINNIPEG W.CENTRAL	551	63.3
WESTMAN	1567	84.9
EASTMAN	1210	77.5
CENTRAL	1543	87.3
INTERLAKE	905	80.8
PARKLANDS	600	90.1
NORMAN	429	85.3
THOMPSON	545	46.9
UNKNOWN	45	81.8
PROVINCE	12466	67.4

TABLE 26. NUMBER AND PERCENT OF CHILDREN WITH 4 DOSES OF DT (DPT) AND 3 DOSES OF OPV/IPV SINCE BIRTH

REGION	NUMBER		PERCENT	
	DT	DPT	DT	DPT
CITY OF WINNIPEG	358	347	11.3	10.9
WINNIPEG NORTH	1525	1489	56.5	55.2
WINNIPEG SOUTH	1939	1885	63.1	61.3
WINNIPEG W.CENTRAL	489	474	55.8	54.4
WESTMAN	1390	1358	75.3	73.6
EASTMAN	1152	1142	73.8	73.1
CENTRAL	1482	1431	83.8	80.9
INTERLAKE	856	843	76.4	75.3
PARKLANDS	574	564	86.2	84.7
NORMAN	391	378	77.7	75.2
THOMPSON	456	454	39.7	39.5
UNKNOWN	35	35	63.6	63.
PROVINCE	10644	10400	57.6	56.2

1985 BIRTH COHORT

These tables look at children born in 1985, and examine their immunization experience from the fourth to the fifth birthday. Records of children in this age group will not yet have been monitored by MIMS, since they are too old to have been monitored at one or two years of age, and are not yet six.

TABLE 27. TOTAL NUMBER OF DOSES OF PERTUSSIS VACCINE SINCE BIRTH

This table counts all instances of administration of any pertussis-containing vaccine since birth. According to the provincial schedule, these children should have received 4 doses of pertussis by the fifth birthday; only 66.9% have 4 or more doses recorded in their MIMS record. The percentage of children with 4 or more doses recorded is highest in the rural regions, which have back-entered the records.

TABLE 28. TOTAL NUMBER OF DOSES OF POLIO VACCINE SINCE BIRTH

This table counts all instances of administration of polio vaccine since birth. The recommended number of doses for children at the fifth birthday is 3; 71.4% of children have recorded at least 3 doses of polio vaccine since birth.

TABLE 29. TOTAL NUMBER OF DOSES OF DIPHTHERIA/TETANUS TOXOIDS SINCE BIRTH

This table counts all instances of administration of diphtheria and tetanus toxoids, regardless of administration of pertussis vaccine. As in previous birth cohorts most children who received DT also received pertussis vaccine (68.2% received DT; 66.9% received DPT).

TABLE 30. NUMBER AND PERCENT OF CHILDREN WITH AT LEAST ONE DOSE OF MMR ADMINISTERED ON OR AFTER THE FIRST BIRTHDAY

Measured immunization rates for this vaccine are high for the rural regions, with the exception of Thompson. The provincial level of 68.3 compares with 67.4% for the 1986 cohort. Single measles, mumps or rubella immunizations are not included in the tabulations.

TABLE 31. NUMBER AND PERCENT OF CHILDREN WITH 4 DOSES OF DT (DPT) AND 3 DOSES OF OPV/IPV SINCE BIRTH

The percent of children with records indicating adequate immunization for age is 68.1 for DT, and 66.8 for DPT. Highest immunization rates are recorded in the southern rural regions of the province.

TABLE 32. NUMBER AND PERCENT OF CHILDREN WITH 5 DOSES OF DT (DPT) AND 4 DOSES OF OPV/IPV SINCE BIRTH

This table is included since the preschool dose of DPT and polio vaccine can be administered from age 4 to age 6, although it is recommended that it be given before school entry. A total of 24.7% of children have records indicating administration of at least 5 doses of DT and 4 doses of polio vaccine; 21.2% have at least 5 doses of DPT and 4 doses of polio vaccine.

TABLE 27. TOTAL NUMBER OF DOSES OF PERTUSSIS VACCINE SINCE BIRTH

	ZERO		1 - 3 DOSES		>=4 DOSES	
REGION	NO.	%	NO.	%	NO.	%
CITY OF WPG	1662	57.9	858	29.9	349	12.1
WPG NORTH	543	18.2	457	15.3	1990	66.5
WPG SOUTH	409	13.2	278	9.0	2409	77.8
WPG W.CENTRAL	116	13.1	98	11.0	675	75.9
WESTMAN	139	7.6	149	8.2	1533	84.2
EASTMAN	139	8.8	107	6.7	1343	84.5
CENTRAL	114	6.3	125	6.9	1582	86.9
INTERLAKE	71	6.6	99	9.2	905	84.2
PARKLANDS	27	4.1	36	5.4	599	90.5
NORMAN	45	9.0	39	7.8	415	83.2
THOMPSON	413	37.0	172	15.4	531	47.6
UNKNOWN	21	17.4	24	19.8	76	62.8
PROVINCE	3699	19.9	2442	13.2	12407	66.9

TABLE 28. TOTAL NUMBER OF DOSES OF POLIO VACCINE SINCE BIRTH

	ZERO		1 - 2 DOSES		>=3 DOSES	
REGION	NO.	%	NO.	%	NO.	%
CITY OF WPG	1551	54.1	874	30.5	440	15.5
WPG NORTH	506	16.9	310	10.4	2174	72.7
WPG SOUTH	385	12.4	147	4.7	2564	82.8
WPG W.CENTRAL	115	12.9	66	7.4	708	79.7
WESTMAN	139	7.6	71	3.9	1611	88.5
EASTMAN	131	8.2	51	3.2	1407	88.5
CENTRAL	112	6.2	60	3.3	1649	90.5
INTERLAKE	67	6.2	51	4.7	957	89.0
PARKLANDS	26	8.9	10	1.5	626	94.6
NORMAN	42	8.4	25	5.0	432	86.6
THOMPSON	409	36.7	123	11.0	5 4	52.3
UNKNOWN	22	18.2	10	8.3	89	73.5
PROVINCE	3505	18.9	1798	9.7	13245	71.4

TABLE 29. TOTAL NUMBER OF DOSES OF DIPHTHERIA/TETANUS TOXOIDS SINCE BIRTH

	ZERO		1 - 3 DOSES		>=4 DOSES	
REGION	NO.	%	NO.	%	NO.	%
CITY OF WPG	1534	53.5	970	33.8	365	12.7
WPG NORTH	504	16.9	437	14.6	2049	68.5
WPG SOUTH	383	12.4	264	8.5	2449	79.1
WPG W.CENTRAL	112	12.6	92	10.3	685	77.1
WESTMAN	137	7.5	129	7.1	1555	85.4
EASTMAN	130	8.2	104	6.5	1355	85.3
CENTRAL	112	6.2	92	5.1	1617	88.8
INTERLAKE	67	6.2	76	7.1	932	86.7
PARKLANDS	25	3.8	32	4.8	605	91.4
NORMAN	43	8.6	35	7.0	421	84.4
THOMPSON	409	36.7	170	15.2	537	48.1
UNKNOWN	21	17.4	24	19.8	76	62.8
PROVINCE	3477	18.7	2425	13.1	12646	68.2

TABLE 30. NUMBER AND PERCENT OF CHILDREN WITH AT LEAST ONE DOSE OF MMR ADMINISTERED ON OR AFTER THE FIRST BIRTHDAY

REGION	NUMBER	PERCENT
CITY OF WINNIPEG	514	17.9
WINNIPEG NORTH	2043	68.3
WINNIPEG SOUTH	2337	75.5
WINNIPEG W.CENTRAL	659	74.1
WESTMAN	1604	88.1
EASTMAN	1299	81.7
CENTRAL	1617	88.8
INTERLAKE	911	84.7
PARKLANDS	609	92.0
NORMAN	433	86.8
THOMPSON	555	49.1
UNKNOWN	78	72.9
PROVINCE	12665	68.3

TABLE 31. NUMBER AND PERCENT OF CHILDREN WITH 4 DOSES OF DT (DPT) AND 3 DOSES OF OPV/IPV SINCE BIRTH

REGION	NUMBER		PERCENT	
	DT	DPT	DT	DPT
CITY OF WINNIPEG	364	348	12.7	12.1
WINNIPEG NORTH	2048	1989	68.5	66.5
WINNIPEG SOUTH	2444	2404	78.9	77.7
WINNIPEG W.CENTRAL	679	669	76.4	75.3
WESTMAN	1555	1533	85.4	84.2
EASTMAN	1354	1342	85.2	84.5
CENTRAL	1616	1582	88.7	86.9
INTERLAKE	930	903	86.5	84.0
PARKLANDS	605	599	91.4	90.5
NORMAN	421	415	84.4	83.2
THOMPSON	547	541	48.3	47.7
UNKNOWN	66	66	61.7	61.7
PROVINCE	12629	12391	68.1	66.8

TABLE 32. NUMBER AND PERCENT OF CHILDREN WITH 5 DOSES OF DT (DPT) AND 4 DOSES OF OPV/IPV SINCE BIRTH

REGION	NUMBER		PERCENT	
	DT	DPT	DT	DPT
CITY OF WINNIPEG	117	97	4.1	3.4
WINNIPEG NORTH	829	672	27.7	22.5
WINNIPEG SOUTH	1017	796	32.9	25.7
WINNIPEG W.CENTRAL	238	200	26.8	22.5
WESTMAN	349	341	19.2	18.7
EASTMAN	601	494	37.8	31.1
CENTRAL	572	521	31.4	29.6
INTERLAKE	263	242	24.5	22.5
PARKLANDS	165	161	24.9	24.3
NORMAN	207	198	41.5	39.7
THOMPSON	219	202	19.5	17.9
UNKNOWN	11	10	10.3	9.4
PROVINCE	4588	3934	24.7	21.2

1984 BIRTH COHORT

These tables look at children born in 1984, and examine their immunization status at the sixth birthday. Records of children in this age group resident in rural Manitoba will have been monitored by MIMS, at the sixth birthday, and letters to parents informing them of their child's immunization status will have been sent. As well, some of the children will have had contact with the school system, and may have had their immunization records updated at that time.

TABLE 33. TOTAL NUMBER OF DOSES OF PERTUSSIS VACCINE SINCE BIRTH

This table counts all instances of administration of any pertussis-containing vaccine since birth. According to the provincial schedule, these children should have received 5 doses of pertussis by the sixth birthday; only 46.5% have 5 or more doses recorded in their MIMS record. The percentage of children with 5 or more doses recorded, although low, is highest in the rural regions.

TABLE 34. TOTAL NUMBER OF DOSES OF POLIO VACCINE SINCE BIRTH

This table counts all instances of administration of polio vaccine since birth. The recommended number of doses for children at the sixth birthday is 4; 69.7% of children have recorded at least 4 doses of polio vaccine since birth. Completion rates are much higher in the rural regions.

TABLE 35. TOTAL NUMBER OF DOSES OF DIPHTHERIA/TETANUS TOXOIDS SINCE BIRTH

This table counts all instances of administration of diphtheria and tetanus toxoids, regardless of administration of pertussis vaccine. Unlike previous cohorts, a significant percent of children who have received the recommended 5 doses of diphtheria and tetanus toxoids have not had 5 doses of DPT (57.3% compared to 46.5%).

TABLE 36. NUMBER AND PERCENT OF CHILDREN WITH AT LEAST ONE DOSE OF MMR ADMINISTERED ON OR AFTER THE FIRST BIRTHDAY

Measured immunization rates for this vaccine are high for the rural regions, with the exception of Thompson. The provincial level of 68.0 compares with 68.3% for the 1985 cohort. Single measles, mumps or rubella immunizations are not included in the tabulations.

TABLE 37. NUMBER AND PERCENT OF CHILDREN WITH 4 DOSES OF DT (DPT) AND 3 DOSES OF OPV/IPV SINCE BIRTH

This table summarized the number and percent of children in each region who have completed the recommended immunization schedule, excluding the preschool boosters. 70.8% of children have recorded at least 4 doses of DT and 3 doses of polio vaccine; 69.1% have recorded at least 4 doses of DPT.

TABLE 38. NUMBER AND PERCENT OF CHILDREN WITH 5 DOSES OF DT (DPT) AND 4 DOSES OF OPV/IPV SINCE BIRTH

Children in this birth cohort should have received a total of 5 doses of D(P)T and 4 doses of polio vaccine. A total of 58.7% of children have records indicating administration of at least 5 doses of DT and 4 doses of polio vaccine; 46.4% have at least 5 doses of DPT and 4 doses of polio vaccine. There is an apparent tendancy for boosters to be given using DT rather than the recommended DPT.

TABLE 33. TOTAL NUMBER OF DOSES OF PERTUSSIS VACCINE SINCE BIRTH

	ZERO		1-3 DOSES		4 DOSES		>=5 DOSES	
REGION	NO.	%	NO.	%	NO.	%	NO.	%
C. OF WPG	1326	47.0	1121	39.7	171	6.1	205	7.2
WPG NORTH	460	15.4	492	16.5	798	26.8	1229	41.3
WPG SOUTH	302	10.0	263	8.7	969	32.0	1499	49.4
W.W.CENT.	92	11.0	82	9.8	272	32.6	389	46.6
WESTMAN	119	6.4	120	6.5	449	24.3	1159	62.8
EASTMAN	107	7.5	86	6.0	438	30.6	800	55.9
CENTRAL	90	5.0	108	6.0	313	17.3	1294	71.7
INTERLAKE	42	4.0	87	8.3	332	31.6	589	56.1
PARKLANDS	25	3.6	21	3.0	70	10.1	579	83.3
NORMAN	46	9.5	32	6.6	77	15.9	328	67.9
THOMPSON	436	40.8	110	10.3	176	16.5	346	32.4
UNKNOWN	13	11.3	18	15.6	47	40.9	37	32.2
PROVINCE	3058	16.8	2540	14.1	4112	22.6	8454	46.5

TABLE 34. TOTAL NUMBER OF DOSES OF POLIO VACCINE SINCE BIRTH

	ZERO		1-2 DOSES		3 DOSES		>=4 DOSES	
REGION	NO.	%	NO.	%	NO.	%	NO.	%
C. OF WPG	907	32.1	1457	51.6	71	2.5	388	13.7
WPG NORTH	287	9.6	555	18.6	67	2.3	2070	69.5
WPG SOUTH	255	8.4	211	7.0	75	2.5	2492	82.1
W.W.CENT.	69	8.3	72	8.6	33	4.0	661	79.1
WESTMAN	112	6.1	69	3.7	51	2.8	1615	87.4
EASTMAN	99	6.9	51	3.6	27	1.9	1254	87.6
CENTRAL	87	4.8	37	2.1	69	3.8	1612	89.3
INTERLAKE	34	3.2	52	5.0	43	4.1	921	87.7
PARKLANDS	24	3.5	7	1.0	20	2.9	644	92.7
NORMAN	46	9.5	8	1.6	23	4.8	406	84.1
THOMPSON	438	41.0	69	6.5	40	3.8	521	48.7
UNKNOWN	13	11.3	11	9.6	5	4.4	86	74.7
PROVINCE	2371	13.1	2599	14.3	524	2.9	12670	69.7

TABLE 35. TOTAL NUMBER OF DOSES OF DIPHTHERIA/TETANUS TOXOIDS SINCE BIRTH

	ZERO		1-3 DOSES		4 DOSES		>=5 DOSES	
REGION	NO.	%	NO.	%	NO.	%	NO.	%
C. OF WPG	893	31.6	1527	54.1	149	5.3	254	9.0
WPG NORTH	278	9.3	604	20.3	313	10.5	1784	59.9
WPG SOUTH	251	8.3	262	8.6	355	11.7	2165	71.4
W.W.CENT.	69	8.3	87	10.4	129	15.5	550	65.8
WESTMAN	109	5.9	99	5.4	383	20.7	1256	68.0
EASTMAN	98	6.9	72	5.0	159	11.1	1102	77.0
CENTRAL	86	4.8	74	4.1	218	12.1	1427	79.0
INTERLAKE	34	3.2	78	7.4	189	18.0	749	71.4
PARKLANDS	24	3.5	16	2.3	58	8.4	597	85.8
NORMAN	46	9.5	24	5.0	64	13.2	349	72.3
THOMPSON	433	40.5	102	9.6	128	12.0	405	37.9
UNKNOWN	13	11.3	18	15.6	47	40.9	37	32.2
PROVINCE	2334	12.8	2960	16.3	2191	12.1	10409	57.3

TABLE 36. NUMBER AND PERCENT OF CHILDREN WITH AT LEAST ONE DOSE OF MMR ADMINISTERED ON OR AFTER THE FIRST BIRTHDAY

REGION	NUMBER	PERCENT
CITY OF WINNIPEG	498	17.6
WINNIPEG NORTH	2109	70.8
WINNIPEG SOUTH	2270	74.8
WINNIPEG W.CENTRAL	616	73.8
WESTMAN	1595	86.4
EASTMAN	1138	79.5
CENTRAL	1624	90.0
INTERLAKE	900	85.7
PARKLANDS	617	88.8
NORMAN	404	83.6
THOMPSON	499	46.4
UNKNOWN	82	76.6
PROVINCE	12352	68.0

TABLE 37. NUMBER AND PERCENT OF CHILDREN WITH 4 DOSES OF DT (DPT) AND 3 DOSES OF OPV/IPV SINCE BIRTH

REGION	NUMBER		PERCENT	
	DT	DPT	DT	DPT
CITY OF WINNIPEG	403	376	14.3	13.3
WINNIPEG NORTH	2096	2027	70.4	68.0
WINNIPEG SOUTH	2516	2466	83.0	81.3
WINNIPEG W.CENTRAL	677	659	81.1	78.9
WESTMAN	1637	1607	88.6	87.0
EASTMAN	1261	1238	88.1	86.5
CENTRAL	1645	1607	91.1	89.0
INTERLAKE	938	921	89.3	87.7
PARKLANDS	655	649	94.2	93.4
NORMAN	413	405	85.5	83.9
THOMPSON	531	520	49.4	48.4
UNKNOWN	85	82	79.4	76.6
PROVINCE	12857	12557	70.8	69.1

TABLE 38. NUMBER AND PERCENT OF CHILDREN WITH 5 DOSES OF DT (DPT) AND 4 DOSES OF OPV/IPV SINCE BIRTH

REGION	NUMBER		PERCENT	
	DT	DPT	DT	DPT
CITY OF WINNIPEG	251	202	8.9	7.2
WINNIPEG NORTH	1781	1227	59.8	41.2
WINNIPEG SOUTH	2161	1497	71.3	49.4
WINNIPEG W.CENTRAL	546	385	65.4	46.1
WESTMAN	1254	1158	67.9	62.7
EASTMAN	1102	800	77.0	55.9
CENTRAL	1426	1293	79.0	71.6
INTERLAKE	747	588	71.1	56.0
PARKLANDS	596	578	85.8	83.2
NORMAN	348	327	72.1	67.7
THOMPSON	402	343	37.3	31.8
UNKNOWN	40	36	37.4	33.6
PROVINCE	10654	8434	58.7	46.4

1983 BIRTH COHORT

These tables look at children born in 1983, and examine their immunization status at the seventh birthday. Records of children in this age group resident in rural Manitoba will have been monitored by MIMS, at the sixth birthday, and letters to parents informing them of their child's immunization status will have been sent. The children will have had contact with the school system, and may have had their immunization records updated at that time.

TABLE 39. TOTAL NUMBER OF DOSES OF PERTUSSIS VACCINE SINCE BIRTH

This table counts all instances of administration of any pertussis-containing vaccine since birth. According to the provincial schedule, these children should have received 5 doses of pertussis by the seventh birthday; only 47.1% have 5 or more doses recorded in their MIMS record. The percentage of children with 5 or more doses recorded, although low, is higher in the rural regions. excluding Thompson. This measured immunization rate is similar to that of children born in 1984, and almost certainly reflects continuing incomplete records.

TABLE 40. TOTAL NUMBER OF DOSES OF POLIO VACCINE SINCE BIRTH

This table counts all instances of administration of polio vaccine since birth. The recommended number of doses for children at the seventh birthday is 4; 72.3% of children have recorded at least 4 doses of polio vaccine since birth. Completion rates are much high in the rural regions and suburban Winnipeg, where school-entry immunization records have been updated.

TABLE 41. TOTAL NUMBER OF DOSES OF DIPHTHERIA/TETANUS TOXOIDS SINCE BIRTH

This table counts all instances of administration of diphtheria and tetanus toxoids, regardless of administration of pertussis vaccine. Unlike previous cohorts, a significant percent of children who have received the recommended 5 doses of diphtheria and tetanus toxoids have not had 5 doses of DPT (65.1% compared to 47.1%).

TABLE 42. NUMBER AND PERCENT OF CHILDREN WITH AT LEAST ONE DOSE OF MMR ADMINISTERED ON OR AFTER THE FIRST BIRTHDAY

Measured immunization rates for this vaccine are high for the rural regions, with the exception of Thompson, and for suburban Winnipeg. The provincial level of 69.2% compares with 68.0% for the 1984 cohort. Single measles, mumps or rubella immunizations are not included in the tabulations.

TABLE 43. NUMBER AND PERCENT OF CHILDREN WITH 4 DOSES OF DT (DPT) AND 3 DOSES OF OPV/IPV SINCE BIRTH

This table summarizes the number and percent of children in each region who have completed the recommended immunization schedule, excluding the preschool boosters. 72.8% of children have recorded at least 4 doses of DT and 3 doses of polio vaccine; 70.9% have recorded at least 4 doses of DPT.

TABLE 44. NUMBER AND PERCENT OF CHILDREN WITH 5 DOSES OF DT (DPT) AND 4 DOSES OF OPV/IPV SINCE BIRTH

Children in this birth cohort should have received a total of 5 doses of D(P)T and 4 doses of polio vaccine. A total of 64.9% of children have records indicating administration of at least 5 doses of DT and 4 doses of polio vaccine; 47.0% have at least 5 doses of DPT and 4 doses of polio vaccine. As with the 1984 birth cohort, there is an apparent tendancy for boosters to be given using DT rather than the recommended DPT.

TABLE 39. TOTAL NUMBER OF DOSES OF PERTUSSIS VACCINE SINCE BIRTH

	ZERO		1-3 DOSES		4 DOSES		>=5 DOSES	
REGION	NO.	%	NO.	%	NO.	%	NO.	%
C. OF WPG	1530	56.4	783	28.9	177	6.5	222	8.2
WPG NORTH	389	13.5	327	11.3	921	31.9	1255	43.3
WPG SOUTH	327	11.0	231	7.8	1103	37.0	1288	43.2
W.W.CENT.	86	9.9	84	9.7	309	35.6	388	44.8
WESTMAN	124	6.8	102	5.6	328	18.1	1258	69.4
EASTMAN	122	8.0	75	4.9	523	34.3	807	52.8
CENTRAL	108	6.0	85	4.7	332	18.5	1271	70.8
INTERLAKE	66	5.9	74	6.6	293	26.2	684	61.3
PARKLANDS	24	3.5	9	1.3	75	10.8	586	84.4
NORMAN	41	8.4	22	4.5	61	12.4	367	74.7
THOMPSON	510	45.3	83	7.4	166	14.7	367	32.6
UNKNOWN	18	18.8	14	14.6	24	25.0	40	41.6
PROVINCE	3345	18.5	1919	10.6	4312	23.8	8533	47.1

TABLE 40. TOTAL NUMBER OF DOSES OF POLIO VACCINE SINCE BIRTH

	ZERO		1-2 DOSES		3 DOSES		>=4 DOSES	
REGION	NO.	%	NO.	%	NO.	%	NO.	%
C. OF WPG	994	36.7	1232	45.4	58	2.1	428	15.8
WPG NORTH	225	7.8	376	13.0	51	1.8	2330	80.4
WPG SOUTH	250	8.4	234	7.8	44	1.5	2451	82.3
W.W.CENT.	68	7.8	68	7.8	18	2.1	713	82.2
WESTMAN	118	6.5	60	3.3	29	1.6	1605	88.6
EASTMAN	107	7.0	51	3.3	28	1.8	1341	87.9
CENTRAL	98	5.5	33	1.8	38	2.1	1627	90.6
INTERLAKE	58	5.2	47	4.2	22	2.0	990	88.6
PARKLANDS	24	3.5	3	0.4	3	0.4	664	95.7
NORMAN	40	8.2	5	1.0	14	2.9	432	87.9
THOMPSON	509	45.2	47	4.2	34	3.0	536	47.6
UNKNOWN	16	16.7	13	13.5	1	1.0	66	68.7
PROVINCE	2507	13.8	2169	12.0	340	1.9	13093	72.3

TABLE 41. TOTAL NUMBER OF DOSES OF DIPHTHERIA/TETANUS TOXOIDS SINCE BIRTH

	ZERO		1-3 DOSES		4 DOSES		>=5 DOSES	
REGION	NO.	%	NO.	%	NO.	%	NO.	%
C. OF WPG	961	35.4	1315	48.5	110	4.1	326	12.0
WPG NORTH	223	7.7	413	14.3	225	7.8	2031	70.2
WPG SOUTH	245	8.2	274	9.2	233	7.5	2237	75.1
W.W.CENT.	65	7.5	76	8.8	79	9.1	647	74.6
WESTMAN	117	6.5	78	4.3	161	8.9	1456	80.3
EASTMAN	107	7.0	70	4.6	128	8.4	1222	80.0
CENTRAL	99	5.5	53	3.0	136	7.6	1508	83.9
INTERLAKE	58	5.2	61	5.5	136	12.2	862	77.1
PARKLANDS	24	3.5	4	0.6	51	7.4	615	88.8
NORMAN	40	8.2	16	3.3	46	9.4	389	79.1
THOMPSON	507	45.0	78	6.9	98	8.7	443	39.4
UNKNOWN	17	17.7	12	12.5	18	18.8	49	51.0
PROVINCE	2463	13.6	2450	13.5	1411	7.8	11785	65.1

TABLE 42. NUMBER AND PERCENT OF CHILDREN WITH AT LEAST ONE DOSE OF MMR ADMINISTERED ON OR AFTER THE FIRST BIRTHDAY

REGION	NUMBER	PERCENT
CITY OF WINNIPEG	471	17.4
WINNIPEG NORTH	2125	73.5
WINNIPEG SOUTH	2237	75.1
WINNIPEG W.CENTRAL	653	75.3
WESTMAN	1572	86.8
EASTMAN	1241	81.3
CENTRAL	1622	90.3
INTERLAKE	945	84.6
PARKLANDS	637	91.8
NORMAN	427	87.0
THOMPSON	538	47.4
UNKNOWN	62	70.1
PROVINCE	12529	69.2

TABLE 43. NUMBER AND PERCENT OF CHILDREN WITH 4 DOSES OF DT (DPT) AND 3 DOSES OF OPV/IPV SINCE BIRTH

REGION	NUMBER		PERCENT	
	DT	DPT	DT	DPT
CITY OF WINNIPEG	436	399	16.1	14.7
WINNIPEG NORTH	2254	2174	77.9	75.2
WINNIPEG SOUTH	2459	2390	82.5	80.2
WINNIPEG W.CENTRAL	722	693	83.3	79.9
WESTMAN	1616	1585	89.2	87.5
EASTMAN	1350	1330	88.4	87.1
CENTRAL	1644	1603	91.5	89.3
INTERLAKE	997	976	89.3	87.4
PARKLANDS	666	661	96.0	95.2
NORMAN	435	428	88.6	87.2
THOMPSON	545	537	48.2	47.5
UNKNOWN	63	60	71.6	68.2
PROVINCE	13187	12836	72.8	70.9

TABLE 44. NUMBER AND PERCENT OF CHILDREN WITH 5 DOSES OF DT (DPT) AND 4 DOSES OF OPV/IPV SINCE BIRTH

REGION	NUMBER		PERCENT	
	DT	DPT	DT	DPT
CITY OF WINNIPEG	323	220	11.9	8.1
WINNIPEG NORTH	2025	1251	70.0	43.3
WINNIPEG SOUTH	2234	1286	75.0	43.2
WINNIPEG W.CENTRAL	640	385	73.8	44.4
WESTMAN	1455	1257	80.3	69.4
EASTMAN	1219	806	79.8	52.8
CENTRAL	1507	1270	83.9	70.7
INTERLAKE	861	683	77.1	61.2
PARKLANDS	615	586	88.6	84.4
NORMAN	389	367	79.2	74.8
THOMPSON	484	368	39.2	32.5
UNKNOWN	46	38	52.3	43.2
PROVINCE	11758	8517	64.9	47.0

1982 BIRTH COHORT

These tables look at children born in 1982, and examine their immunization status at the eighth birthday. Records of children in this age group resident in rural Manitoba will have been monitored by MIMS, at the sixth birthday. The children will have had contact with the school system, and may have had their immunization records updated at that time.

TABLE 45. TOTAL NUMBER OF DOSES OF PERTUSSIS VACCINE SINCE BIRTH

This table counts all instances of administration of any pertussis-containing vaccine since birth. According to the provincial schedule, these children should have received 5 doses of pertussis by the eighth birthday; only 45.8% have 5 or more doses recorded in their MIMS record. The percentage of children with 5 or more doses recorded, although low, is higher in the rural regions, excluding Thompson.

TABLE 46. TOTAL NUMBER OF DOSES OF POLIO VACCINE SINCE BIRTH

This table counts all instances of administration of polio vaccine since birth. The recommended number of doses for children at the eighth birthday is 4; 68.5% of children have recorded at least 4 doses of polio vaccine since birth. Completion rates are much higher in the rural regions and suburban Winnipeg, where school-entry immunization records have been updated.

TABLE 47. TOTAL NUMBER OF DOSES OF DIPHTHERIA/TETANUS TOXOIDS SINCE BIRTH

This table counts all instances of administration of diphtheria and tetanus toxoids, regardless of administration of pertussis vaccine. As with the 1983 cohort, a significant percent of children who have received the recommended 5 doses of diphtheria and tetanus toxoids have not had 5 doses of DPT (59.1% compared to 45.8%).

TABLE 48. NUMBER AND PERCENT OF CHILDREN WITH AT LEAST ONE DOSE OF MMR ADMINISTERED ON OR AFTER THE FIRST BIRTHDAY

Measured immunization rates for this vaccine are highest for the rural regions, with the exception of Thompson, and for suburban Winnipeg. The provincial level of 62.0% compares with 69.2% for the 1984 cohort. Single measles, mumps or rubella immunizations are not included in the tabulations.

TABLE 49. NUMBER AND PERCENT OF CHILDREN WITH 5 DOSES OF DT (DPT) AND 4 DOSES OF OPV/IPV SINCE BIRTH

Children in this birth cohort should have received a total of 5 doses of D(P)T and 4 doses of polio vaccine. A total of 58.8% of children have records indicating administration of at least 5 doses of DT and 4 doses of polio vaccine; 45.6% have at least 5 doses of DPT and 4 doses of polio vaccine. As with the 1983 birth cohort, there is an apparent tendancy for boosters to be given using DT rather than the recommended DPT.

TABLE 45. TOTAL NUMBER OF DOSES OF PERTUSSIS VACCINE SINCE BIRTH

	ZERO		1-3 DOSES		4 DOSES		>=5 DOSES	
REGION	NO.	%	NO.	%	NO.	%	NO.	%
C. OF WPG	1900	73.5	337	13.0	191	7.4	157	6.1
WPG NORTH	653	23.3	250	8.9	710	25.3	1195	42.5
WPG SOUTH	495	16.9	234	8.0	1094	37.3	1108	37.8
W.W.CENT.	83	10.2	64	7.9	260	31.9	408	50.0
WESTMAN	169	9.2	89	4.8	333	18.1	1250	67.9
EASTMAN	250	16.1	79	5.1	282	18.1	945	60.7
CENTRAL	134	7.5	109	6.1	265	14.9	1275	71.5
INTERLAKE	129	12.1	63	5.9	269	25.3	602	56.6
PARKLANDS	69	10.0	35	5.1	248	35.9	339	49.0
NORMAN	64	12.9	25	5.1	65	13.1	341	68.9
THOMPSON	434	43.5	57	5.7	108	10.8	398	40.0
UNKNOWN	13	15.3	6	7.1	11	12.9	55	64.7
PROVINCE	4393	24.9	1348	7.6	3836	21.7	8073	45.8

TABLE 46. TOTAL NUMBER OF DOSES OF POLIO VACCINE SINCE BIRTH

	ZERO		1-2 DOSES		3 DOSES		>=4 DOSES	
REGION	NO.	%	NO.	%	NO.	%	NO.	%
C. OF WPG	1677	64.9	489	18.9	55	2.1	364	14.1
WPG NORTH	583	20.8	215	7.7	68	2.4	1942	69.1
WPG SOUTH	420	14.3	210	7.2	77	2.6	2224	75.9
W.W.CENT.	71	8.7	35	3.3	26	3.2	683	83.8
WESTMAN	164	8.9	54	2.9	27	1.5	1596	86.7
EASTMAN	236	15.2	55	3.5	26	1.7	1239	79.6
CENTRAL	119	6.7	39	2.2	44	2.5	1581	88.7
INTERLAKE	121	11.4	43	4.0	20	1.9	879	82.7
PARKLANDS	68	9.8	19	2.7	11	1.6	593	85.8
NORMAN	62	12.5	9	1.8	9	1.8	415	83.8
THOMPSON	428	42.9	35	3.5	16	1.6	518	52.0
UNKNOWN	12	14.1	10	11.8	-	-	63	74.1
PROVINCE	3961	22.4	1213	6.9	379	2.1	12097	68.5

TABLE 47. TOTAL NUMBER OF DOSES OF DIPHTHERIA/TETANUS TOXOIDS SINCE BIRTH

	ZERO		1-3 DOSES		4 DOSES		>=5 DOSES	
REGION	NO.	%	NO.	%	NO.	%	NO.	%
C. OF WPG	1667	64.5	552	21.3	146	5.7	220	8.5
WPG NORTH	579	20.6	272	9.7	333	11.9	1624	57.8
WPG SOUTH	420	14.3	265	9.0	280	9.6	1966	67.1
W.W.CENT.	71	8.7	41	5.0	99	12.1	604	74.2
WESTMAN	162	8.8	77	4.2	206	11.2	1396	75.8
EASTMAN	235	15.1	82	5.3	139	8.9	1100	70.7
CENTRAL	120	6.7	70	8.9	142	8.0	1451	81.4
INTERLAKE	119	11.2	62	5.8	109	10.3	773	72.7
PARKLANDS	68	9.8	29	4.2	182	26.3	412	59.7
NORMAN	62	12.5	18	3.6	41	8.3	374	75.6
THOMPSON	426	42.7	51	5.1	81	8.1	439	44.1
UNKNOWN	12	14.1	7	8.2	9	10.6	57	67.0
PROVINCE	3941	22.3	1526	8.6	1767	10.0	10416	59.1

TABLE 48. NUMBER AND PERCENT OF CHILDREN WITH AT LEAST ONE DOSE OF MMR ADMINISTERED ON OR AFTER THE FIRST BIRTHDAY

REGION	NUMBER	PERCENT
CITY OF WINNIPEG	409	15.8
WINNIPEG NORTH	1769	63.0
WINNIPEG SOUTH	1959	66.8
WINNIPEG W.CENTRAL	616	75.6
WESTMAN	1484	80.6
EASTMAN	1043	67.0
CENTRAL	1451	81.4
INTERLAKE	822	77.3
PARKLANDS	500	72.3
NORMAN	365	73.7
THOMPSON	473	46.9
UNKNOWN	51	69.9
PROVINCE	10943	62.0

TABLE 49. NUMBER AND PERCENT OF CHILDREN WITH 5 DOSES OF DT (DPT) AND 4 DOSES OF OPV/IPV SINCE BIRTH

REGION	NUMBER		PERCENT	
	DT	DPT	DT	DPT
CITY OF WINNIPEG	219	156	8.5	6.0
WINNIPEG NORTH	1620	1193	57.7	42.5
WINNIPEG SOUTH	1950	1103	66.5	37.6
WINNIPEG W.CENTRAL	595	402	73.0	49.3
WESTMAN	1392	1247	75.6	67.7
EASTMAN	1100	945	70.7	60.7
CENTRAL	1451	1275	81.4	71.5
INTERLAKE	771	600	72.5	56.4
PARKLANDS	411	338	59.5	48.9
NORMAN	374	341	75.6	68.9
THOMPSON	444	403	43.8	39.8
UNKNOWN	48	46	65.8	63.0
PROVINCE	10375	8049	58.8	45.6

1981 BIRTH COHORT

These tables look at children born in 1981, and examine their immunization status at the ninth birthday. These children are too old to have been monitored by MIMS. However, the children will have had contact with the school system, and may have had their immunization records updated at that time.

TABLE 50. TOTAL NUMBER OF DOSES OF PERTUSSIS VACCINE SINCE BIRTH

This table counts all instances of administration of any pertussis-containing vaccine since birth. According to the provincial schedule, these children should have received 5 doses of pertussis; only 39.4% have 5 or more doses recorded in their MIMS record.

TABLE 51. TOTAL NUMBER OF DOSES OF POLIO VACCINE SINCE BIRTH

This table counts all instances of administration of polio vaccine since birth. The recommended number of doses for children of this age is 4; 66.7% of children have recorded at least 4 doses of polio vaccine since birth. Completion rates are much high in the rural regions and suburban Winnipeg.

TABLE 52. TOTAL NUMBER OF DOSES OF DIPHTHERIA/TETANUS TOXOIDS SINCE BIRTH

This table counts all instances of administration of diphtheria and tetanus toxoids, regardless of administration of pertussis vaccine. As with earlier cohorts, a significant percent of children who have received the recommended 5 doses of diphtheria and tetanus toxoids have not had 5 doses of DPT (55.6% compared to 39.5%).

TABLE 53. NUMBER AND PERCENT OF CHILDREN WITH AT LEAST ONE DOSE OF MMR ADMINISTERED ON OR AFTER THE FIRST BIRTHDAY

Measured immunization levels for MMR are uniformly low in the province, with 26.9% of children having at least one dose of MMR since childhood recorded. Single measles, mumps or rubella immunizations are not included in the tabulations, and many of these children may have had single measles vaccine. This information will be included in later Annual Reports.

TABLE 54. NUMBER AND PERCENT OF CHILDREN WITH 5 DOSES OF DT (DPT) AND 4 DOSES OF OPV/IPV SINCE BIRTH

Children in this birth cohort should have received a total of 5 doses of D(P)T and 4 doses of polio vaccine. A total of

55.4% of children have records indicating administration of at least 5 doses of DT and 4 doses of polio vaccine; 39.4% have at least 5 doses of DPT and 4 doses of polio vaccine. As with the 1982 and 1983 birth cohorts, there is an apparent tendancy for boosters to be given using DT rather than the recommended DPT.

TABLE 50. TOTAL NUMBER OF DOSES OF PERTUSSIS VACCINE SINCE BIRTH

	ZERO		1-3 DOSES		4 DOSES		>=5 DOSES	
REGION	NO.	%	NO.	%	NO.	%	NO.	%
C. OF WPG	1997	82.0	150	6.2	175	7.2	114	4.6
WPG NORTH	936	31.6	241	8.1	930	31.4	858	28.9
WPG SOUTH	572	20.1	187	6.6	1142	40.1	944	33.2
W.W.CENT.	113	12.9	56	6.4	289	33.0	419	47.7
WESTMAN	207	11.1	80	4.3	360	19.2	1227	65.4
EASTMAN	249	16.3	76	5.0	349	22.9	853	55.8
CENTRAL	143	8.3	111	6.4	405	23.5	1068	61.8
INTERLAKE	175	16.0	95	8.7	313	28.7	508	46.6
PARKLANDS	67	9.6	33	4.7	371	53.0	229	32.7
NORMAN	53	11.2	17	3.6	57	12.0	348	73.2
THOMPSON	455	45.1	51	5.1	167	16.6	336	33.2
UNKNOWN	11	15.7	7	10.0	10	14.3	42	60.0
PROVINCE	4978	28.3	1104	6.3	4568	26.0	6946	39.4

TABLE 51. TOTAL NUMBER OF DOSES OF POLIO VACCINE SINCE BIRTH

	ZERO		1-2 DOSES		3 DOSES		>=4 DOSES	
REGION	NO.	%	NO.	%	NO.	%	NO.	%
C. OF WPG	1905	78.2	189	7.7	46	1.9	296	12.2
WPG NORTH	858	28.9	212	7.2	66	2.2	1829	61.7
WPG SOUTH	520	18.3	155	5.4	38	1.3	2132	75.0
W.W.CENT.	103	11.7	23	2.5	20	2.3	732	83.5
WESTMAN	198	10.6	26	1.4	48	2.6	1602	85.4
EASTMAN	241	15.8	53	3.5	17	1.1	1216	79.6
CENTRAL	121	7.0	48	2.8	52	3.0	1506	87.2
INTERLAKE	170	15.6	53	4.9	28	2.5	840	77.0
PARKLANDS	66	9.4	13	1.7	12	1.7	610	87.2
NORMAN	52	11.0	3	0.6	4	0.8	416	87.6
THOMPSON	452	44.8	28	2.8	14	1.4	515	51.0
UNKNOWN	11	15.7	5	7.1	2	2.9	52	74.3
PROVINCE	4697	26.7	806	4.6	347	2.0	11746	66.7

TABLE 52. TOTAL NUMBER OF DOSES OF DIPHTHERIA/TETANUS TOXOIDS SINCE BIRTH

	ZERO		1-3 DOSES		4 DOSES		>=5 DOSES	
REGION	NO.	%	NO.	%	NO.	%	NO.	%
C. OF WPG	1890	77.6	244	10.0	122	5.0	180	7.4
WPG NORTH	851	28.7	273	9.2	440	14.8	1401	47.3
WPG SOUTH	506	17.8	193	6.8	356	12.5	1790	62.9
W.W.CENT.	102	11.6	36	4.1	113	12.9	626	71.4
WESTMAN	199	10.6	63	3.4	272	14.5	1340	71.5
EASTMAN	238	15.6	73	4.8	133	8.7	1083	70.9
CENTRAL	121	7.0	85	4.9	150	8.7	1371	79.4
INTERLAKE	170	15.6	78	7.1	149	13.7	694	63.6
PARKLANDS	65	9.3	29	4.1	204	29.1	402	57.5
NORMAN	52	11.0	7	1.5	37	7.8	379	79.7
THOMPSON	450	44.6	46	4.6	66	6.5	447	44.3
UNKNOWN	11	15.7	6	8.6	4	5.7	49	70.0
PROVINCE	4655	24.4	1133	6.4	2046	11.6	9762	55.6

TABLE 53. NUMBER AND PERCENT OF CHILDREN WITH AT LEAST ONE DOSE OF MMR ADMINISTERED ON OR AFTER THE FIRST BIRTHDAY

REGION	NUMBER	PERCENT
CITY OF WINNIPEG	211	8.7
WINNIPEG NORTH	758	25.6
WINNIPEG SOUTH	913	32.1
WINNIPEG W.CENTRAL	274	31.2
WESTMAN	599	32.0
EASTMAN	443	29.0
CENTRAL	514	29.8
INTERLAKE	381	34.9
PARKLANDS	189	27.0
NORMAN	141	29.7
THOMPSON	278	27.4
UNKNOWN	27	42.2
PROVINCE	4738	26.9

TABLE 54. NUMBER AND PERCENT OF CHILDREN WITH 5 DOSES OF DT (DPT) AND 4 DOSES OF OPV/IPV SINCE BIRTH

REGION	NUMBER		PERCENT	
	DT	DPT	DT	DPT
CITY OF WINNIPEG	178	113	7.3	4.6
WINNIPEG NORTH	1400	857	47.2	28.9
WINNIPEG SOUTH	1784	942	62.7	33.1
WINNIPEG W.CENTRAL	623	416	71.0	47.4
WESTMAN	1337	1224	71.3	65.3
EASTMAN	1083	853	70.9	55.9
CENTRAL	1368	1066	79.2	61.7
INTERLAKE	693	507	63.5	46.5
PARKLANDS	402	229	57.4	32.7
NORMAN	378	347	79.6	73.1
THOMPSON	451	339	44.4	33.5
UNKNOWN	45	39	70.3	60.9
PROVINCE	9742	6932	55.4	39.4

1980 BIRTH COHORT

These tables look at children born in 1980, and examine their immunization status at the tenth birthday. These children are too old to have been monitored by MIMS. However, the children will have had contact with the school system, and may have had their immunization records updated at that time. Note that MMR immunizations are not considered for this birth cohort, since single measles vaccine was in common use during their infancy.

TABLE 55. TOTAL NUMBER OF DOSES OF PERTUSSIS VACCINE SINCE BIRTH

This table counts all instances of administration of any pertussis-containing vaccine since birth. According to the provincial schedule, these children should have received 5 doses of pertussis; only 35.0% have 5 or more doses recorded in their MIMS record.

TABLE 56. TOTAL NUMBER OF DOSES OF POLIO VACCINE SINCE BIRTH

This table counts all instances of administration of polio vaccine since birth. The recommended number of doses for children of this age is 4; 63.4% of children have recorded at least 4 doses of polio vaccine since birth. Completion rates are much higher in the rural regions and suburban Winnipeg.

TABLE 57. TOTAL NUMBER OF DOSES OF DIPHTHERIA/TETANUS TOXOIDS SINCE BIRTH

This table counts all instances of administration of diphtheria and tetanus toxoids, regardless of administration of pertussis vaccine. As with earlier cohorts, a significant percent of children who have received the recommended 5 doses of diphtheria and tetanus toxoids have not had 5 doses of DPT (53.5% compared to 35.0%).

TABLE 58. NUMBER AND PERCENT OF CHILDREN WITH 5 DOSES OF DT (DPT) AND 4 DOSES OF OPV/IPV SINCE BIRTH

Children in this birth cohort should have received a total of 5 doses of D(P)T and 4 doses of polio vaccine. A total of 55.3% of children have records indicating administration of at least 5 doses of DT and 4 doses of polio vaccine; 34.9% have at least 5 doses of DPT and 4 doses of polio vaccine.

TABLE 55. TOTAL NUMBER OF DOSES OF PERTUSSIS VACCINE SINCE BIRTH

	ZERO		1-3 DOSES		4 DOSES		>=5 DOSES	
REGION	NO.	%	NO.	%	NO.	%	NO.	%
C. OF WPG	2109	85.4	97	3.8	142	5.8	123	5.0
WPG NORTH	999	35.3	228	8.1	806	28.5	799	28.1
WPG SOUTH	701	24.4	206	7.2	1205	41.9	761	26.5
W.W.CENT.	107	12.9	56	7.4	322	38.9	338	40.8
WESTMAN	221	12.1	86	4.7	296	16.3	1218	66.9
EASTMAN	359	23.8	96	6.4	376	25.0	675	44.8
CENTRAL	149	8.3	126	7.0	434	24.2	1082	60.5
INTERLAKE	205	19.0	110	10.2	336	31.1	431	39.8
PARKLANDS	111	15.6	32	4.5	494	69.2	77	10.7
NORMAN	74	16.2	13	2.8	71	15.5	300	65.5
THOMPSON	464	46.7	66	6.6	196	19.7	267	27.0
UNKNOWN	11	21.6	3	5.9	9	17.7	28	54.8
PROVINCE	5510	31.6	1124	6.5	4687	26.9	6099	35.0

TABLE 56. TOTAL NUMBER OF DOSES OF POLIO VACCINE SINCE BIRTH

	ZERO		1-2 DOSES		3 DOSES		>=4 DOSES	
REGION	NO.	%	NO.	%	NO.	%	NO.	%
C. OF WPG	1988	80.5	178	7.2	40	1.6	265	10.7
WPG NORTH	894	31.6	227	8.0	57	2.0	1654	58.4
WPG SOUTH	636	22.1	161	5.6	50	1.7	2026	70.6
W.W.CENT.	99	12.0	29	3.5	18	2.2	682	82.3
WESTMAN	220	12.1	41	2.3	42	2.3	1518	83.3
EASTMAN	348	23.1	59	3.9	22	1.5	1077	71.5
CENTRAL	124	6.9	42	2.3	54	3.0	1571	87.8
INTERLAKE	199	18.4	58	5.4	32	2.9	793	73.3
PARKLANDS	109	15.3	7	1.0	15	2.1	583	81.6
NORMAN	74	16.2	4	0.9	4	0.9	376	82.1
THOMPSON	454	45.7	39	3.9	28	2.8	472	47.6
UNKNOWN	11	21.6	1	2.0	2	3.9	37	72.5
PROVINCE	5156	29.6	846	4.9	369	2.1	11054	63.4

TABLE 57. TOTAL NUMBER OF DOSES OF DIPHTHERIA/TETANUS TOXOIDS SINCE BIRTH

	ZERO		1-3 DOSES		4 DOSES		>=5 DOSES	
REGION	NO.	%	NO.	%	NO.	%	NO.	%
C. OF WPG	1890	77.6	244	10.0	122	5.0	180	7.4
WPG NORTH	851	28.7	273	9.2	440	14.8	1401	47.3
WPG SOUTH	506	17.8	193	6.8	356	12.5	1790	62.9
W.W.CENT.	102	11.6	36	4.1	113	12.9	626	71.4
WESTMAN	199	10.6	63	3.4	272	14.5	1340	71.5
EASTMAN	238	15.6	73	4.8	133	8.7	1083	70.9
CENTRAL	121	7.0	85	4.9	150	8.7	1371	79.4
INTERLAKE	170	15.6	78	7.1	149	13.7	694	63.6
PARKLANDS	65	9.3	29	4.1	204	29.1	402	57.5
NORMAN	52	11.0	7	1.5	37	7.8	379	79.7
THOMPSON	450	44.6	46	4.6	66	6.5	447	44.3
UNKNOWN	11	15.7	6	8.6	4	5.7	49	70.0
PROVINCE	4655	24.4	1133	6.4	2046	11.6	9762	55.6

TABLE 58. NUMBER AND PERCENT OF CHILDREN WITH 5 DOSES OF DT (DPT) AND 4 DOSES OF OPV/IPV SINCE BIRTH

REGION	NUMBER		PERCENT	
	DT	DPT	DT	DPT
CITY OF WINNIPEG	184	121	7.5	4.9
WINNIPEG NORTH	1307	799	46.2	28.2
WINNIPEG SOUTH	1665	755	58.0	26.3
WINNIPEG W.CENTRAL	579	335	69.9	40.5
WESTMAN	1300	1215	71.4	66.7
EASTMAN	972	675	64.5	44.8
CENTRAL	1434	1081	80.1	60.4
INTERLAKE	642	431	59.3	39.8
PARKLANDS	438	77	61.3	10.8
NORMAN	343	300	74.9	65.5
THOMPSON	398	270	39.9	27.1
UNKNOWN	25	25	55.6	55.6
PROVINCE	9287	6084	55.3	34.9

APPENDIX 2.

MANITOBA IMMUNIZATION MONITORING SYSTEM ANNNUAL REPORTS

The following is a list and brief description of the data tables available in the statistical section of the MIMS Annual Report.

1. A4MI709RPT1.

This is a census of all the children in MIMS. The counts are presented by region, regional health unit, and year of birth of the child. All children are included, whether or not they have any immunization records in their file. Children whose records were inactive at the time the report was run are counted separately. The inactive indicator means that the child no longer has a valid registration with the Manitoba Health Services Commission registry. This indicator is change automatically when the child's registry entry indicates that he/she has died or moved out of the province. MIMS maintains these records in the active database for two years after the record becomes inactive, to facilitate transfer of records to other jurisdictions.

2. A4MI716RPT01.

This report counts the number of doses of each immunizing agent which has been given in the REPORT year, to children in each birth cohort. The type of provider is also indicated. The number of restricted immunizations is also noted in this report. This number is determined independently of the counts of provider type.

3. A4MI716RPT.

This report gives the percentage of children in each region who have NO immunizations entered on their MIMS records. The data are presented by birth cohort as well as by region. This report will give an indication of how many children have been missed by MIMS, and who consequently have no immunizations recorded. This will include children who have in fact had no immunizations, children who have moved into the province and whose immunizations have yet to be entered into MIMS, and children whose records are inactive (moved, died).

4. A4MI720RPT01.

This report gives the number, percent and cumulative percent of children immunized against diphtheria and tetanus, first dose, by age in days from birth to one year of age, by region. To be counted, a child must have an 8601, 8641 or

8921 tariff code in their record. This report looks at children born in the year previous to the REPORT year (i.e., in the 1990 annual report, this woudld look at children born in 1989), allowing for one cycle of monitoring and correction of records.

5. A4MI720RPT02.

This report gives the number, percent and cumulative percent of children immunized against polio, first dose, by age in days from birth to one year of age, by region. To be counted, a child must have recorded at least one dose of any polio vaccine (oral or inactivated). As above this report looks at children born in the year prior to the REPORT year.

6. A4MI720RPT03.

This report documents the number, percent and cumulative percent of children immunized against pertussis, first dose, by age in days from birth to one year of age, be region. To be counted, a child must have recorded one of 8601 or 8921. The report looks at childrne born in the year prior to the REPORT year.

7. A4MI720RPT04.

This report gives the number, percent and cumulative percent of children immunized against diphtheria and tetanus, second doses, by age in days from birth to one year of age, by region. To be counted, the child's record must contain one of 8602, 8642 or 8922. The report looks at children born in the year prior to the REPORT year.

8. A4MI720RPT05.

This report gives the number, percent and cumulative percent of children immunized against polio, second dose, in days from birth to one year of age, by region. To be counted, the child's record must contain two instances of any vaccine against polio (oral or inactive). This report looks at children born in the year prior to the REPORT year.

9. A4MI720RPT06.

This report gives the number, percent and cumulative percent of children immunized against pertussis, second dose, in days from birth to one year of age, by region. To be counted, the child's record must contain an 8602 (second DTP) or 8922 (second DPTP). This report looks at children born in the year prior to the REPORT year.

10. A4MI720RPT07.

This report gives the number, percent and cumulative percent of children immunized against diphtheria and tetanus, second dose, by age in days from birth to one year of age, by regions. To be counted, the child's record must have at least one of 8602, 8922 or 8642. This report looks at children born in the year prior to the REPORT year.

11. A4MI720RPT08.

This report gives the number, percent, and cumulative percent of children immunized against polio, third dose, by age in days from birth to one year of age, by region. To be counted, the child's record must contain at least three instances of any vaccine containing polio (oral or inactive). This report looks at children born in the year prior to the REPORT year.

12. A4MI720RPT09.

This report gives the number, percent, and cumulative percent of children immunized against pertussis, third dose, by age in days from birth to one year of age, by region. To be counted, the child's record must contain one of 8603 (third DTP) or 8923 (third DPTP). This report looks at children born in the year prior to the REPORT year.

13. A4MI720RPT10.

This report gives the number, percent and cumulative percent of children who have completed the primary series, by age in days from birth to one year of age, by region. To be counted the child's record must contain evidence of three doses of diphtheria and tetanus and pertussis, and two doses of polio. The relevant tariff codes are referred to above. This report looks at children born in the year prior to the REPORT year.

14. A4MI720RPT11.

This report gives the number, percent and cumulative percent of children who have completed the primary series, by age in weeks from birth to one year of age, by region. To be counted the child's record must contain evidence of three doses of diphtheria and tetanus, and two doses of polio.The relevant tariff codes for each dose are referred to above. This report looks at children born in the year prior to the REPORT year.

15. A4MI720RPT12.

This report gives the number, percent and cumulative percent of children immunized against diphtheria and tetanus, first

dose, by age in days from birth to one year of age, by region. To be counted, the child's record must contain at least one instance of ANY vaccine containing diphtheria and tetanus. This report looks at children born in the year prior to the REPORT year.

16. A4MI720RPT13.

This report gives the number, percent and cumulative percent of children immunized against diphtheria, pertussis and tetanus, first dose, by age in days from birth to one year of age, by region. To be counted, the child's record must contain at least one instance of ANY vaccine containing diphtheria, pertussis and tetanus.

17. A4MI720RPT14.

This report gives the number, percent and cumulative percent of children immunized against diphtheria and tetanus, second dose, by age in days from birth to one year of age, by region. To be counted, the child's record must contain at least two instances of ANY vaccine containing diphtheria and tetanus. This report looks at children born in the year prior to the REPORT year.

18. A4MI720RPT15.

This report gives the number, percent and cumulative percent of children immunized against diphtheria, pertussis and tetanus, second dose, by age in days from birth to one year of age, by region. To be counted, the child's record must contain at least two instances of ANY vaccine containing diphtheria, pertussis and tetanus.

19. A4MI720RPT16.

This report gives the number, percent and cumulative percent of children immunized against diphtheria and tetanus, third dose, by age in days from birth to one year of age, by region. To be counted, the child's record must contain at least three instances of ANY vaccine containing diphtheria and tetanus. This report looks at children born in the year prior to the REPORT year.

20. A4MI720RPT17.

This report gives the number, percent and cumulative percent of children immunized against diphtheria, pertussis and tetanus, third dose, by age in days from birth to one year of age, by region. To be counted, the child's record must contain at least three instances of ANY vaccine containing diphtheria, pertussis and tetanus.

21. A4MI720RPT18.

This report gives the number, percent and cumulative percent of children who have completed the primary series, by age in days from birth to one year of age, by region. To be counted, the child's record must contain evidence of three doses of diphtheria and tetanus, and two doses of polio.

22. A4MI720RPT19.

This report gives the number, percent and cumulative percent of children who have completed the primary series, by age in days from birth to one year of age, by region. To be counted the child's record must contain evidence of three doses of diphtheria and tetanus and pertussis, and two doses of polio. This report looks at children born in the year prior to the REPORT year.

23. A4MI720RPT20.

This report summarizes the total number of doses of pertussis vaccine administered to children, from birth to the first birthday, by region. The report counts all instances of administration of any pertussis vaccine. This report looks at children born in the year prior to the REPORT year.

24. A4MI720RPT21.

This report summarizes the total number of doses of polio administered to chidren, from birth to the first birthday, by region. The report counts all instances of administration of any polio vaccine, oral or inactive. The report looks at children born in the year prior to the REPORT year.

25. A4MI720RPT22.

This report summarizes the total number of doses of diphtheria and tetanus administered to children, from birth to the first birthday, by region. The report counts all instances of administration of any vaccine containing diphtheria and tetanus toxoids. The report looks at children born in the year prior to the REPORT year.

26. A4MI730RPT01A.

This report gives the number, percent and cumulative percent of children immunized against measles, mumps and rubella by age in days from birth to one year of age, by region. To be counted, the child's record must contain at least one instance of 8670, MMR vaccine. Single measles or rubella or mumps immunization is not sufficient to be counted. The report looks at children born in the second year prior to the REPORT year.

27. A4MI730RPT01B.

This report gives the number, percent and cumulative percent of children immunized against measles, mumps and rubella by age in days from the first birthday to the second birthday, by region. To be counted, the child's record must contain at least one instance of 8670, MMR vaccine. Single measles or rubella or mumps immunization is not sufficient to be counted. The report looks at children born in the second year prior to the REPORT year.

28. A4MI730RPT02.

This report gives the number, percent and cumulative percent of children of children receiving diphtheria and tetanus vaccine, fourth dose, by age in days from the first birthday to the second birthday, by region. To be counted the child's record must contain an instance of administration of a fourth dose of vaccine containing diphtheria and tetanus toxoids. The report looks at children born in the second year prior to the REPORT year.

29. A4MI730RPT03.

This report gives the number, percent and cumulative percent of children of children receiving diphtheria, pertussis and tetanus vaccine, fourth dose, by age in days from the first birthday to the second birthday, by region. To be counted the child's record must contain an instance of administration of a fourth dose of vaccine against diphtheria, pertussis and tetanus. The report looks at children born in the second year prior to the REPORT year.

30. A4MI730RPT05A.

This report summarizes the total number of doses of pertussis vaccine administered to children, from birth to the first birthday, by region. The report counts all instances of administration of any pertussis vaccine in the first year of life. This report looks at children born in the second year prior to the REPORT year.

31. A4MI730RPT05B.

This report summarizes the total number of doses of pertussis vaccine administered to children, from birth to the second birthday, by region. The report counts all instances of administration of any pertussis vaccine in the first two years of life. This report looks at children born in the second year prior to the REPORT year.

32. A4MI730RPT06A.

This report summarizes the total number of doses of polio administered to chidren, from birth to the first birthday, by region. The report counts all instances of administration of any polio vaccine, oral or inactive, in the first year of life. The report looks at children born in the second year prior to the REPORT year.

33. A4MI730RPT06B.

This report summarizes the total number of doses of polio administered to chidren, from birth to the second birthday, by region. The report counts all instances of administration of any polio vaccine, oral or inactive, in the first two years of life. The report looks at children born in the second year prior to the REPORT year.

34. A4MI730RPT07A.

This report summarizes the total number of doses of diphtheria and tetanus toxoids administered to children, from birth to the first birthday, by region. The report counts all instances of administration of any DT vaccine in the first year of life. The report looks at children born in the second year prior to the REPORT year.

35. A4MI730RPT07B.

This report summarizes the total number of doses of diphtheria and tetanus toxoids administered from birth to the second birthday, by region. The report counts all instances of administration of any DT vaccine in the first two years of life. The report looks at children born in the second year prior to the REPORT year.

36. A4MI730RPT08A.

This report summarizes the number and percent of children who, by the first birthday, have received at least 3 doses of vaccine containing diphtheria and tetanus toxoids and 2 doses of any polio vaccine, by region. This report looks at children born in the second year prior to the REPORT year.

37. A4MI730RPT08B.

This report summarizes the number and percent of children who, by the second birthday, have received at least 3 doses of vaccine containing diphtheria and tetanus toxoids and 2 doses of any polio vaccine, by region. This report looks at children born in the second year prior to the REPORT year.

38. A4MI730RPT09A.

This report summarizes the number and percent of children who, by the first birthday, have received at least 3 doses of vaccine containing diphtheria and tetanus toxoids, and pertussis vaccine, and 2 doses of any polio vaccine, by region. This report looks at children born in the second year prior to the REPORT year.

39. A4MI730RPT09B.

This report summarizes the number and percent of children who, by the second birthday, have received at least 3 doses of vaccine containing diphtheria and tetanus toxoids, and pertussis vaccine, and 2 doses of any polio vaccine, by region. This report looks at children born in the second year prior to the REPORT year.

40. A4MI730RPT10A.

This report summarizes the number and percent of children who, by the first birthday, have received at least 4 doses of vaccine containing diphtheria and tetanus toxoids, and 3 doses of any polio vaccine, by region. This report looks at children born in the second year prior to the REPORT year.

41. A4MI730RPT10B.

This report summarizes the number and percent of children who, by the second birthday, have received at least 4 doses of vaccine containing diphtheria and tetanus toxoids, and 3 doses of any polio vaccine, by region. This report looks at children born in the second year prior to the REPORT year.

42. A4MI730RPT11A.

This report summarizes the number and percent of children who, by the first birthday, have received at least 4 doses of vaccine containing diphtheria and tetanus toxoids and pertussis vaccine, and 3 doses of any polio vaccine, by region. This report looks at children born in the second year prior to the REPORT year.

43. A4MI730RPT11B.

This report summarizes the number and percent of children who, by the second birthday, have received at least 4 doses of vaccine containing diphtheria and tetanus toxoids and pertussis vaccine, and 3 doses of any polio vaccine, by region. This report looks at children born in the second year prior to the REPORT year.

44. A4MI730RPT12.

This report summarizes the number of doses of measles, mumps and rubella vaccine given on or after the first birthday, by health region. Children with single measles, mumps or rubella immunization are considered to be unimmunized in this report. This report looks at children born in the second year prior to the REPORT year.

45. A4MI740RPT01.

This report summarizes the total number of doses of pertussis vaccine administered since birth, by region and by birth cohort. The report counts all instances of administration of any pertussis vaccine. These tables look at children born three or more years prior to the REPORT year.

46. A4MI740RPT02.

This report summarizes the total number of doses of any polio vaccine administered since birth, by region and by birth cohort. These tables look at children born three or more years prior to the REPORT year.

47. A4MI740RPT03.

This report summarizes the total number of doses of any vaccine containing diphtheria and tetanus toxoids administered since birth, by region and by birth cohort. These tables look at children born three or more years prior to the REPORT year.

48. A4MI740RPT04.

This report summarizes the total number of doses of measles, mumps and rubella vaccine (MMR) administered on or after the first birthday, by region and birth cohort. These tables look at children born three or more years prior to the REPORT year.

49. A4MI740RPT05.

This report summarizes the number and percent of children who have received at least 4 doses of vaccine containing diphtheria and tetanus toxoids, and 3 doses of any polio vaccine, by region and by birth cohort. These tables look at children born from three to seven years prior to the REPORT year.

50. A4MI740RPT06.

This report summarizes the number and percent of children who have received at least 4 doses of vaccine containing diphtheria and tetanus toxoids and pertussis vaccine, and 3 doses of any polio vaccine, by region and by birth cohort. These tables look at children born from three to seven years prior to the REPORT year.

51. A4MI740RPT07.

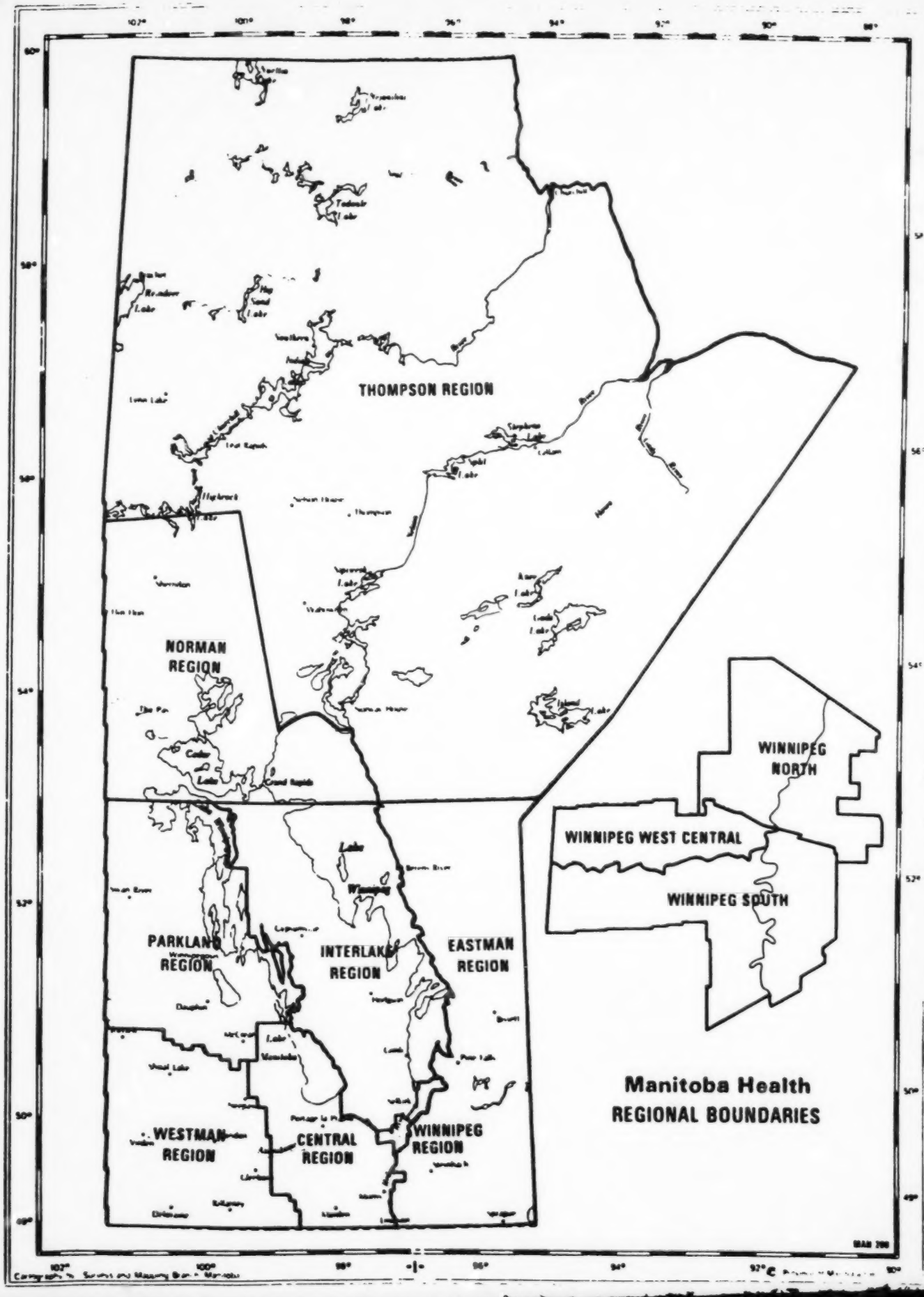
This report summarizes the number and percent of children who have received at least 5 doses of vaccine containing diphtheria and tetanus antitoxins, and 4 doses of any polio vaccine, by region and by birth cohort. These tables look at children born at least four years prior to the REPORT year.

RECOMMENDED IMMUNIZATION SCHEDULE

Tarrif Code	Age	Alternative
8601 DPT	2 MONTHS	8641 DT OR 8921 DPTP
8602 DPT	4 MONTHS	8642 DT OR 8922 DPTP
8603 DPT	6 MONTHS	8643 DT OR 8923 DPTP
8609 DPT	18 MONTHS	8649 DT OR 8929 DPTP
8609 DPT	5 YEARS	8649 DT OR 8929 DPTP
8659 dT	14 YEARS	8609 DPT OR 8649 DT OR 8929 DPTP
8611 OPV	2 MONTHS	8921 DPTP OR 8931 IPV
8612 OPV	4 MONTHS	8922 DPTP OR 8932 IPV
8613 OPV *	6 MONTHS	8923 DPTP OR 8933 IPV
8619 OPV	18 MONTHS	8619 OPV OR 8929 DPT OR 8939 IPV
8619 OPV	5 YEARS	8929 DPTP OR 8939 IPV
8670 MMR	12 MONTHS	8621 MEASLES
8661 RUBELLA	12 YEARS	8670 MMR IF GIVEN AT OR AFTER ONE YEAR OF AGE

* An 8613 OPV booster at six months of age is no longer required. However, it or one of its acceptable alternatives, may appear on the records of some children.

NOTE: Haemophilus influenzae B tariff code: 8901


THOMPSON REGION
NORMAN REGION
PARKLAND REGION
INTERLAKE REGION
EASTMAN REGION
WESTMAN REGION
CENTRAL REGION
WINNIPEG REGION
WINNIPEG NORTH
WINNIPEG WEST CENTRAL
WINNIPEG SOUTH
Manitoba Health
REGIONAL BOUNDARIES